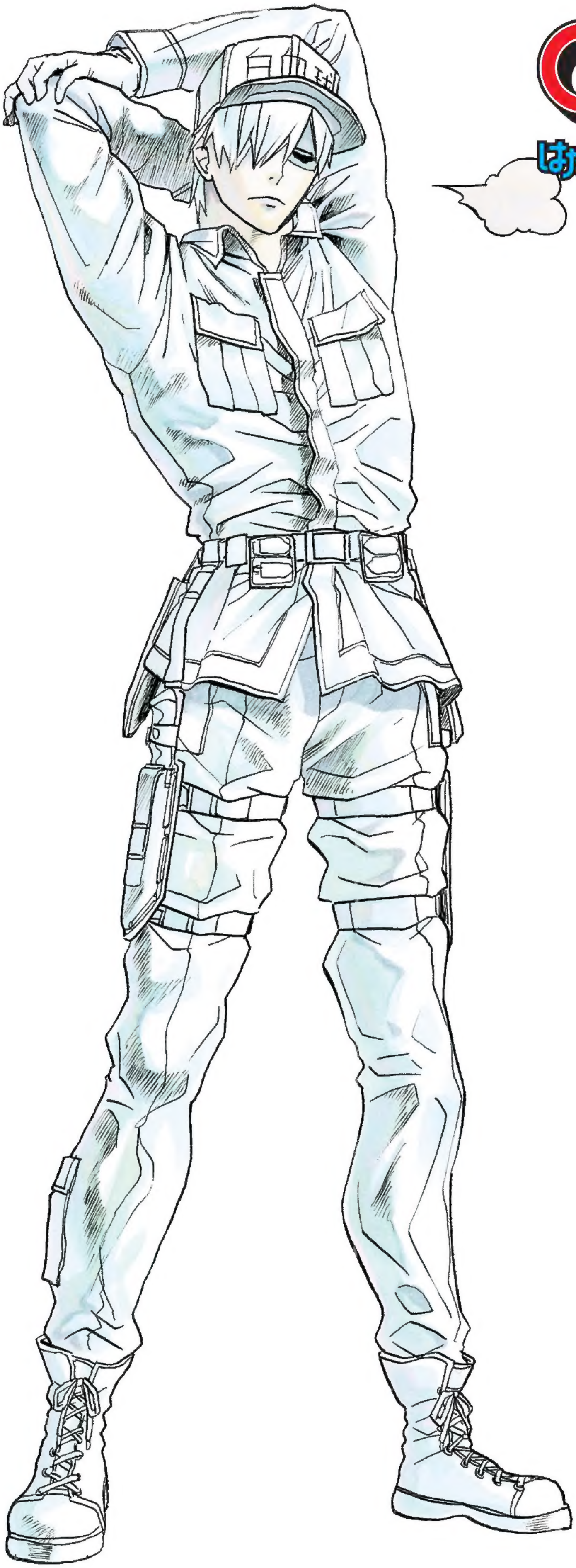
AKANE SHIMIZU

01

WHITE BLOOD CELL
1146
O_2

Cells at Work!

はたらく細胞



Cells at Work!

はたらく細胞

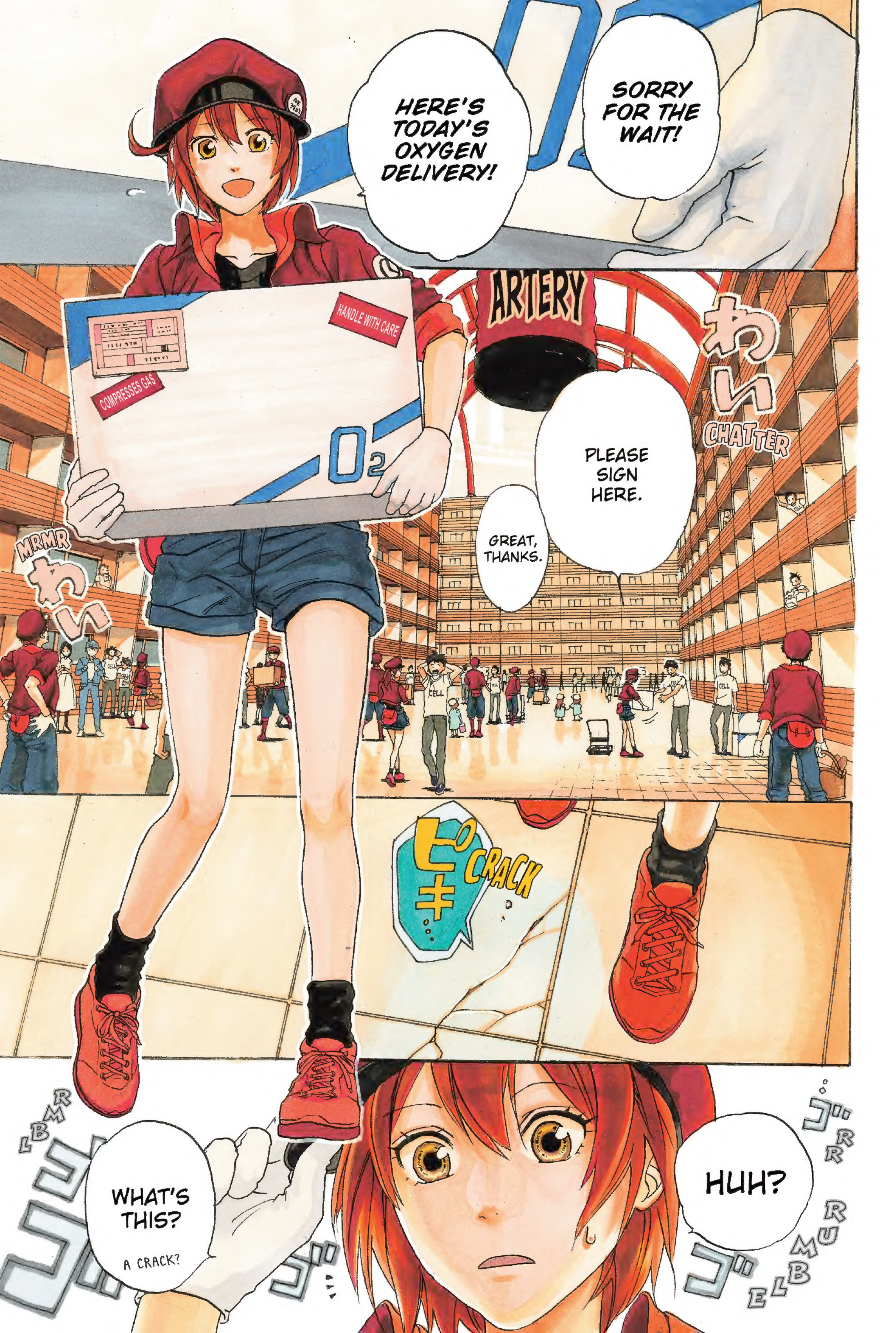
01

AKANE SHIMIZU

CONTENTS

Chapter 1	**Pneumococcus**	001
Chapter 2	**Cedar Pollen Allergy**	061
Chapter 3	**Influenza**	103
Chapter 4	**Scrape Wound**	137

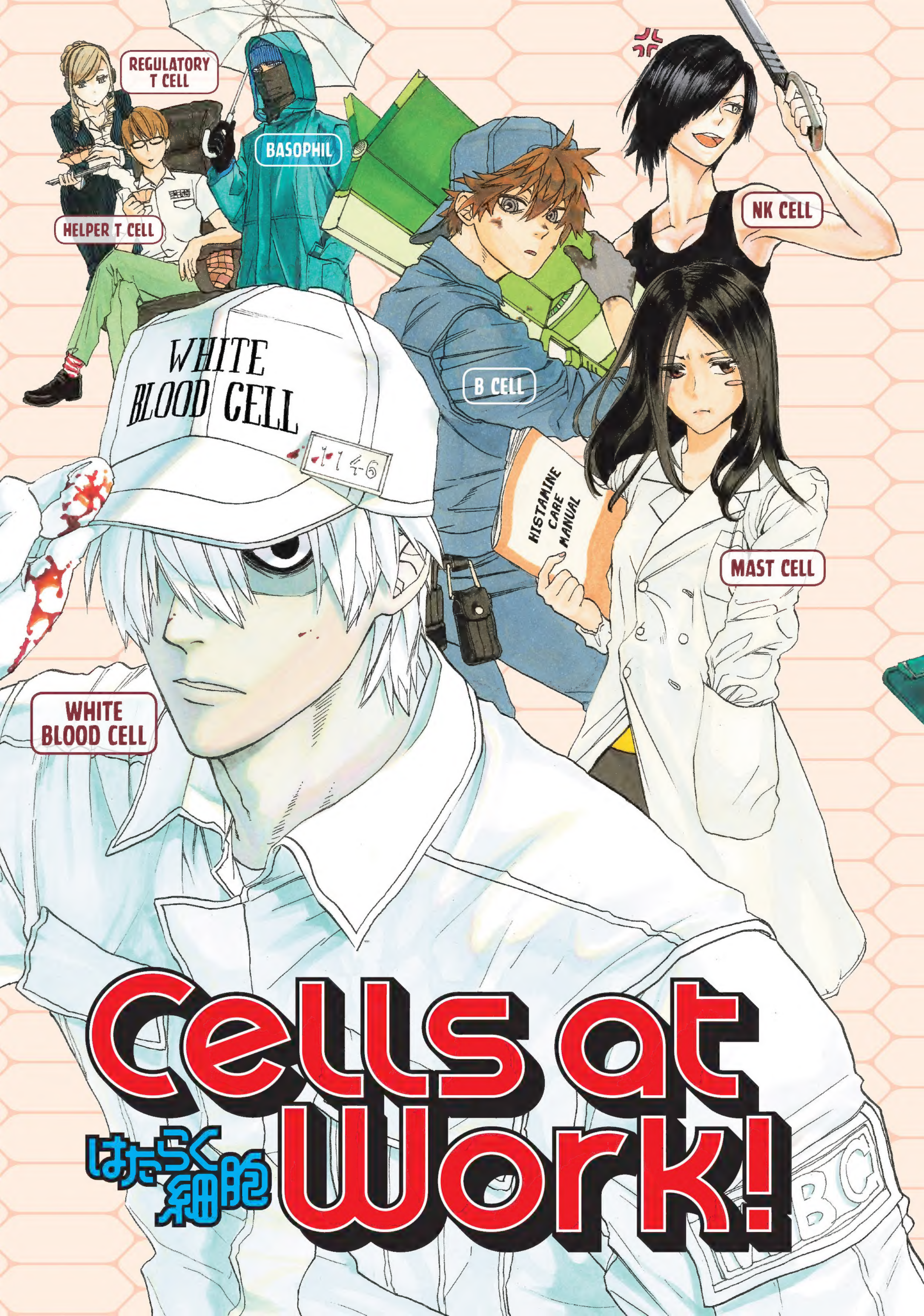
YOU GOT THAT?
CELL
I'M... I'M FINE...!
O2
ゴト KA TUNK
ガタ KA TUNK


SORRY FOR THE WAIT!
HERE'S TODAY'S OXYGEN DELIVERY!
HANDLE WITH CARE
COMPRESSES GAS
O_2
ARTERY
わい
CHATTER
PLEASE SIGN HERE.
GREAT, THANKS.
MRMR
わい
ピキ
CRACK
ゴゴ
RRR
RUMBLE
HUH?
WHAT'S THIS?
A CRACK?
RMBL
ゴゴ

LL
KILLER T CELL
MONOCYTE
MACROPHAGE
MEMORY CELL
EOSINOPHIL
DENDRITIC CELL
STAF
RED BLOOD CELL
PLATELET
PLATELET

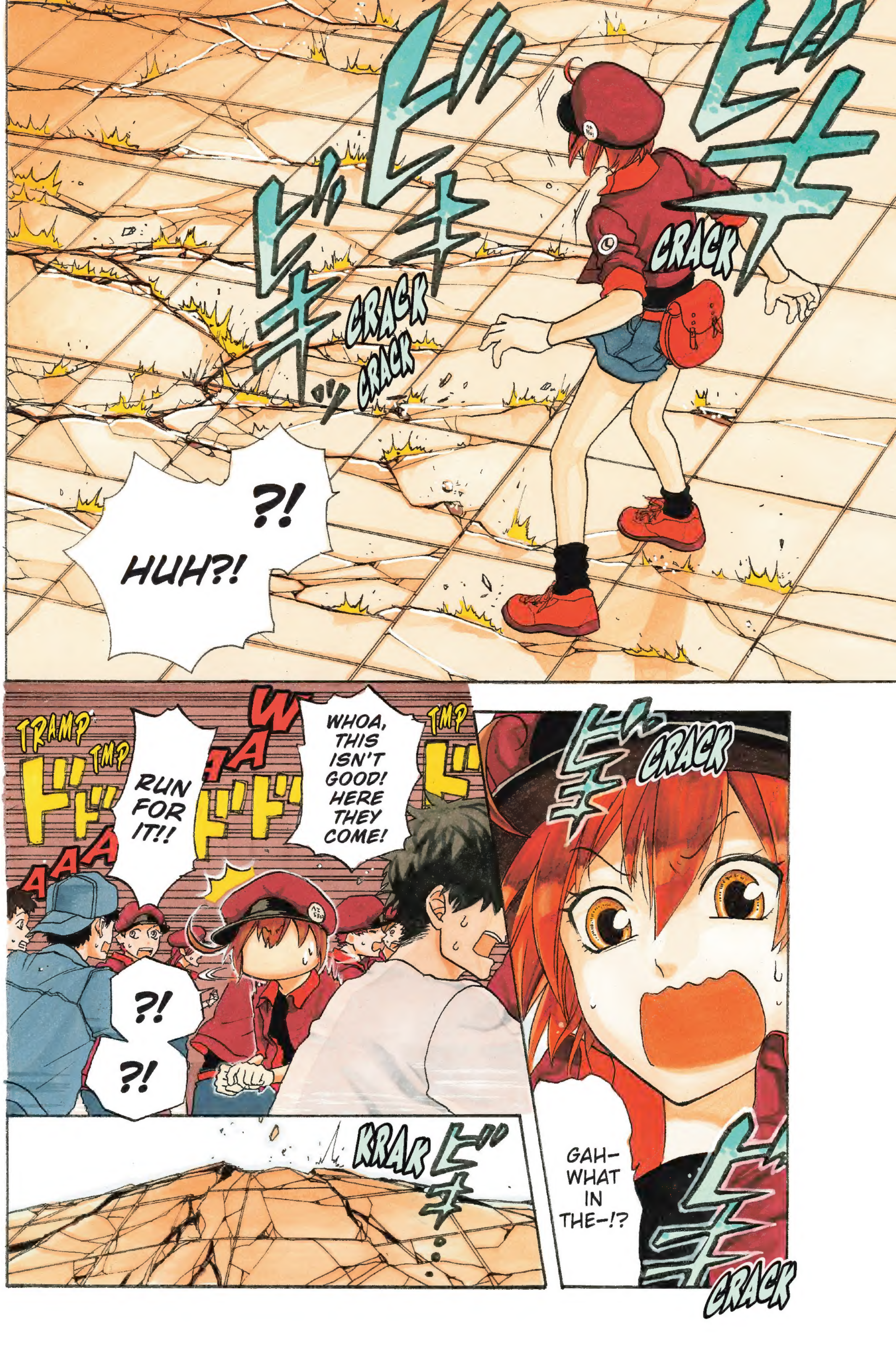
01

AKANE SHIMIZU

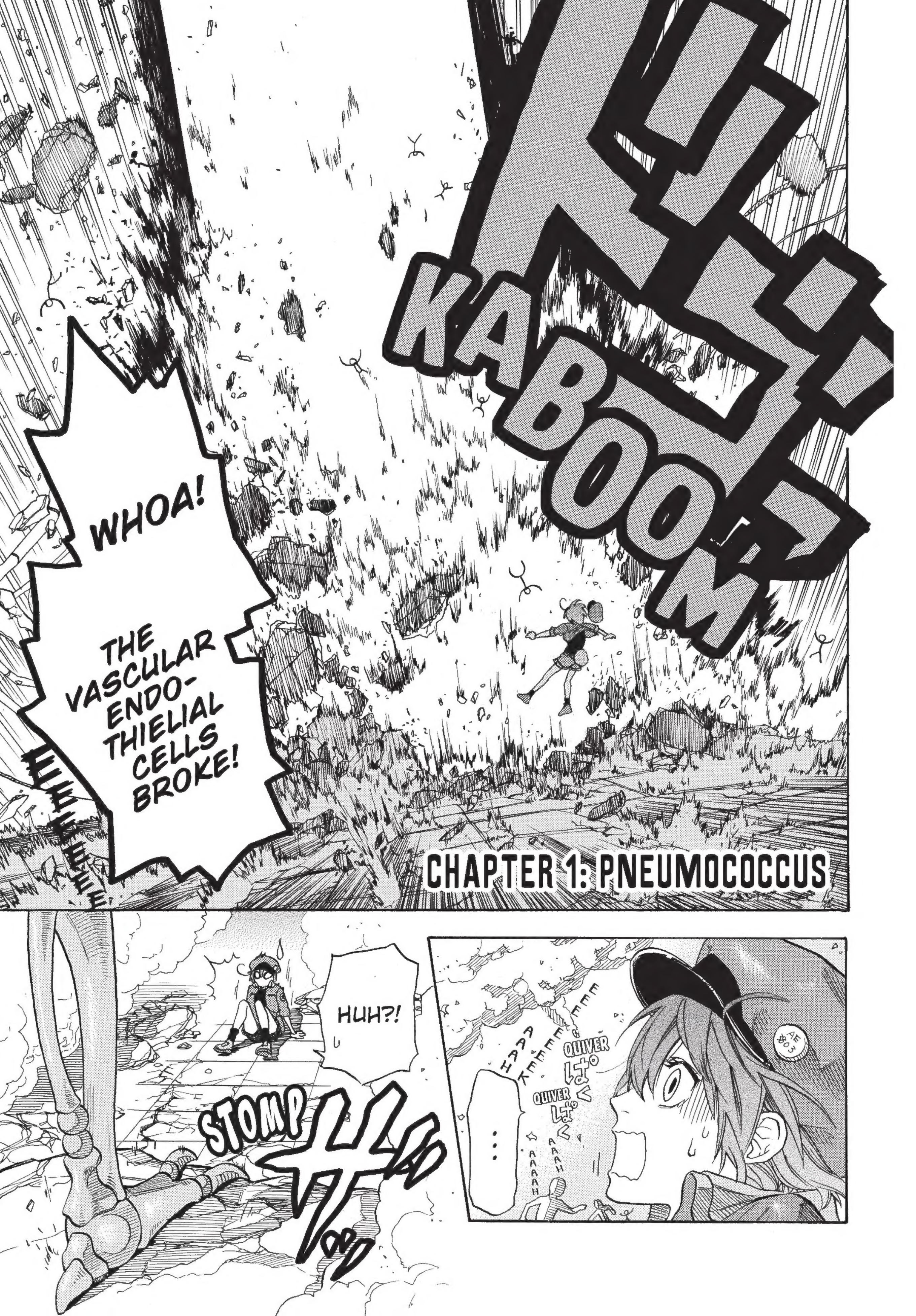

REGULATORY T CELL
BASOPHIL
NK CELL
HELPER T CELL
WHITE BLOOD CELL
1146
B CELL
HISTAMINE CARE MANUAL
MAST CELL
WHITE BLOOD CELL
BC

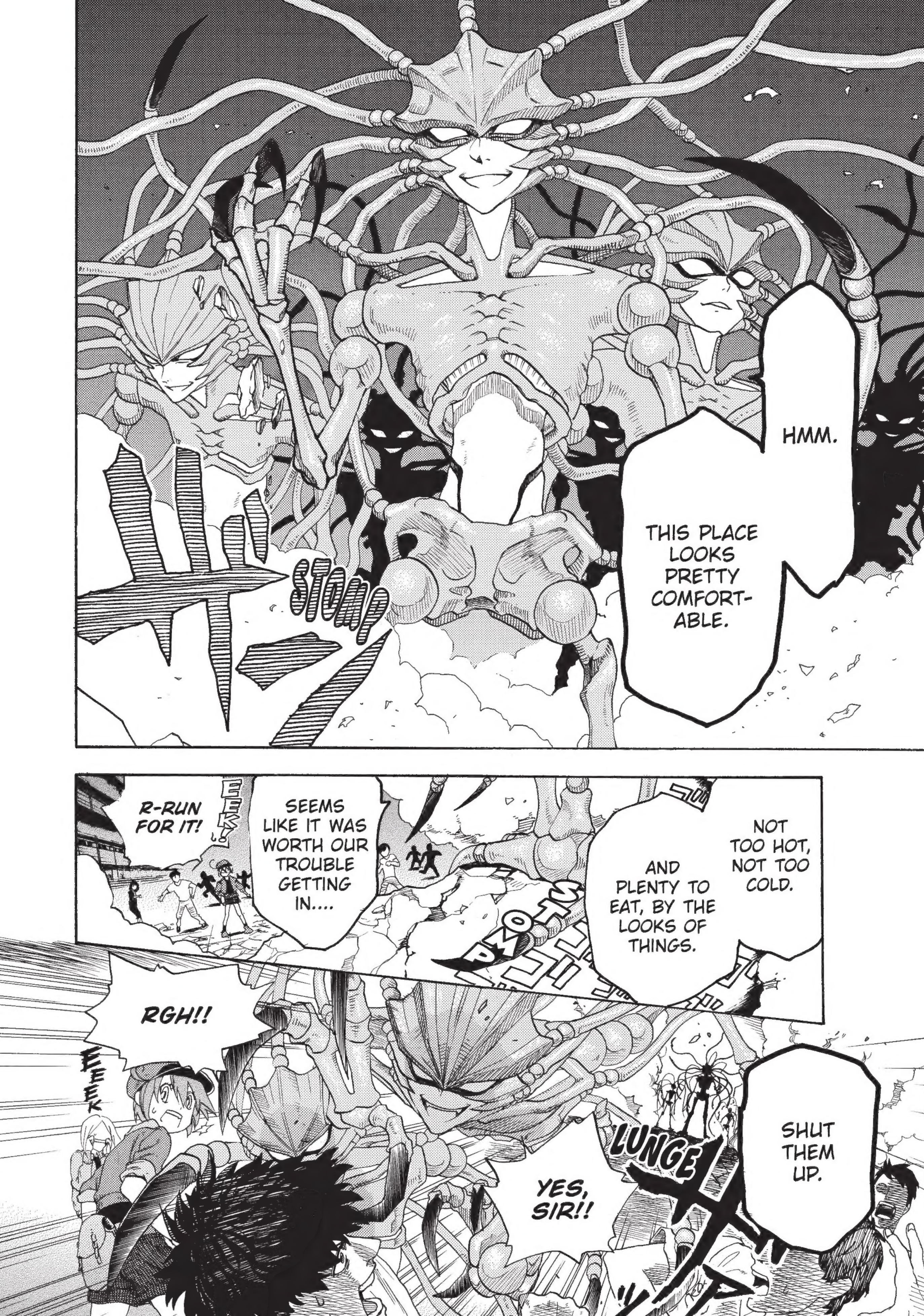
Cells at Work!

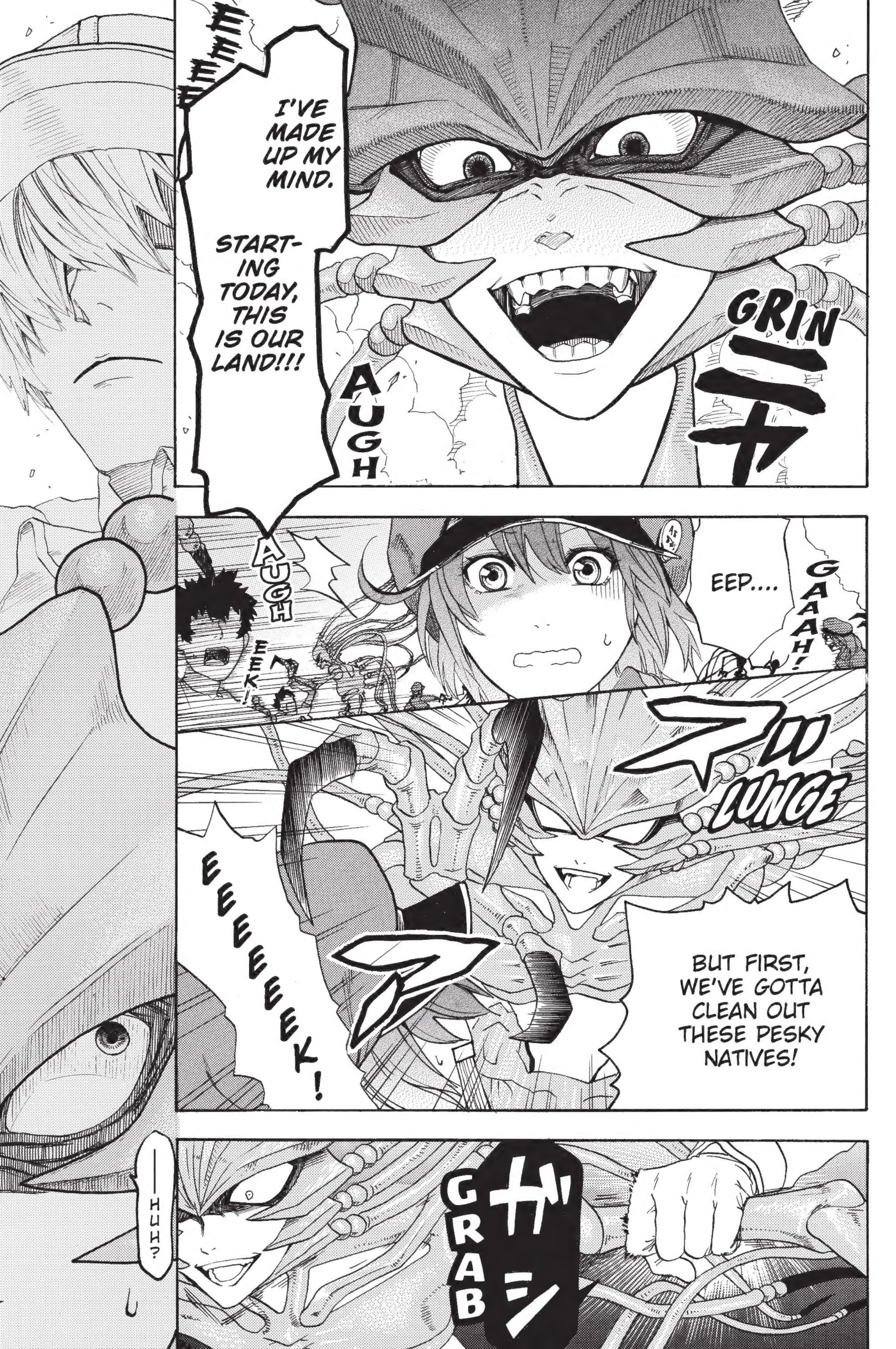
はたらく細胞

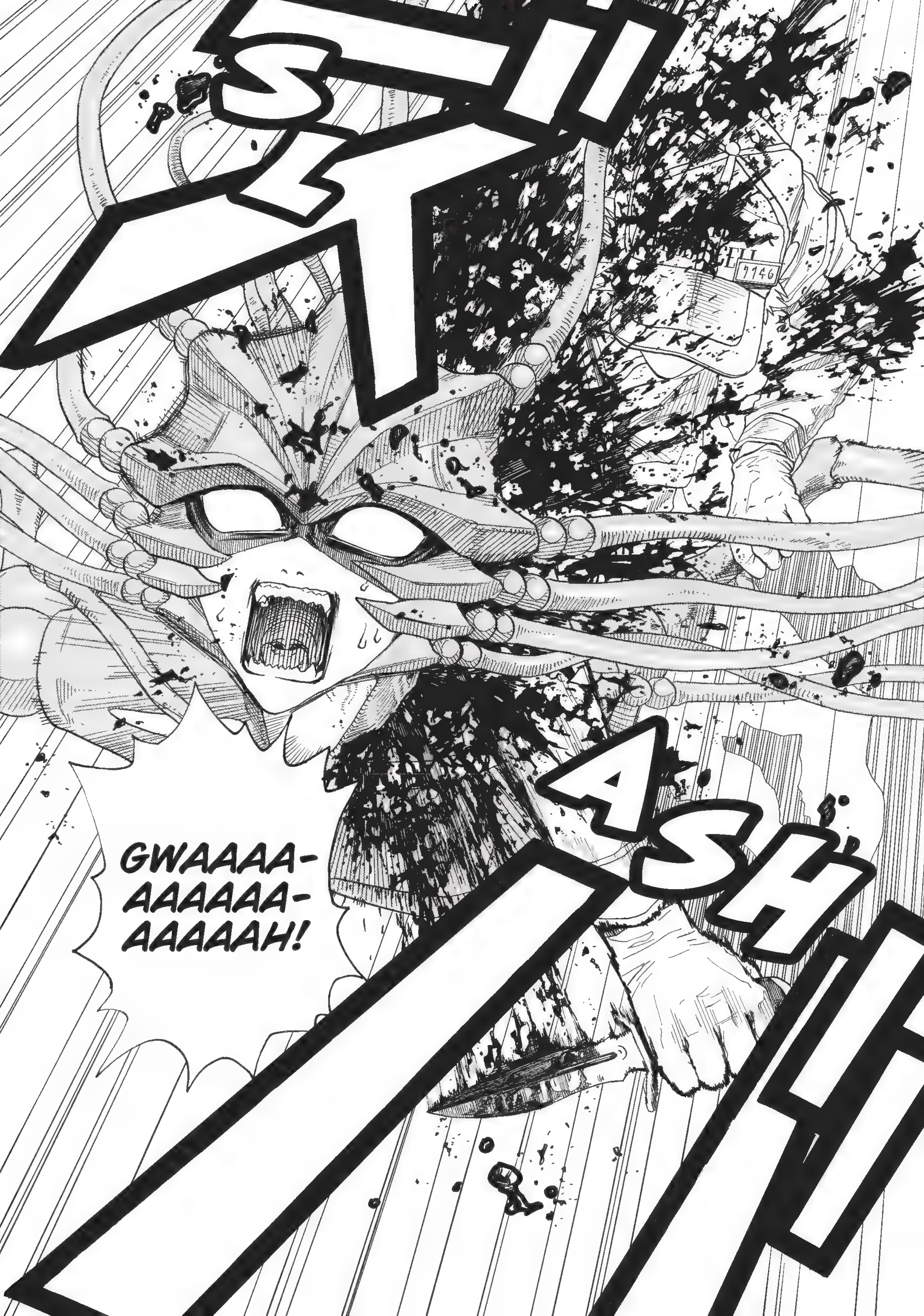

ビキ
ビキ
ビキ
CRACK
CRACK
CRACK
?!
HUH?!
ビキ
CRACK
GAH- WHAT IN THE-!?
ビキ
CRACK
WHOA, THIS ISN'T GOOD! HERE THEY COME!
TMP
ド
RUN FOR IT!!
WAAAA
ドド
TRAMP
TMP
ドド
?!
?!
KRAK
ビキ

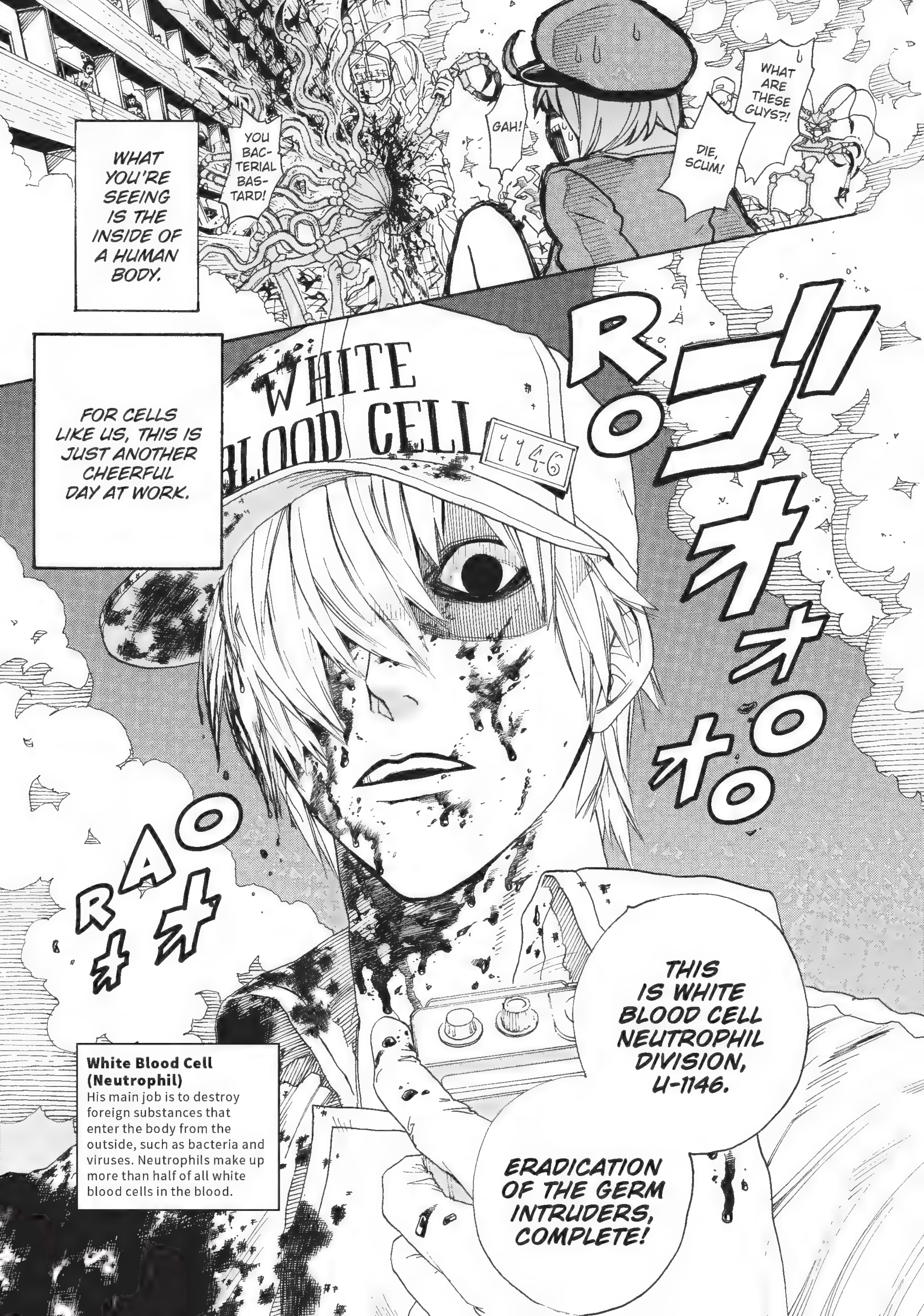
CHAPTER 1: PNEUMOCOCCUS


KABOOM
WHOA!
THE VASCULAR ENDOTHIELIAL CELLS BROKE!
EEEEEEEEE
KEEEEEEEE
HAAAA
QUIVER ぱく
QUIVER ぱく
AE 803
...
AAAAH
AAAAH
HUH?!
STOMP

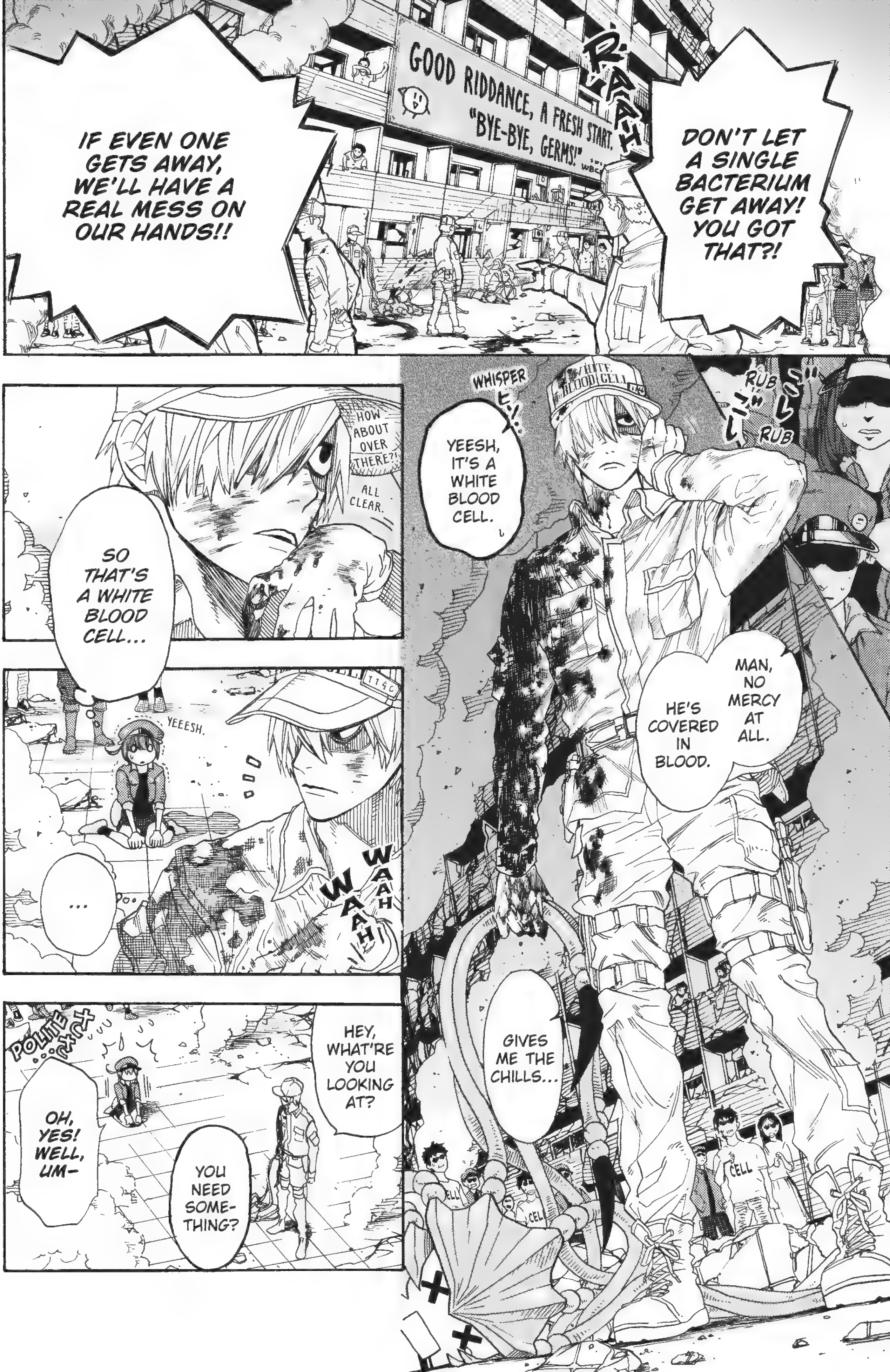

HMM.
THIS PLACE LOOKS PRETTY COMFORTABLE.
STOMP
NOT TOO HOT, NOT TOO COLD.
AND PLENTY TO EAT, BY THE LOOKS OF THINGS.
STOMP
SEEMS LIKE IT WAS WORTH OUR TROUBLE GETTING IN....
EEK!
R-RUN FOR IT!
SHUT THEM UP.
LUNGE
YES, SIR!!
RGH!!
EEEEK

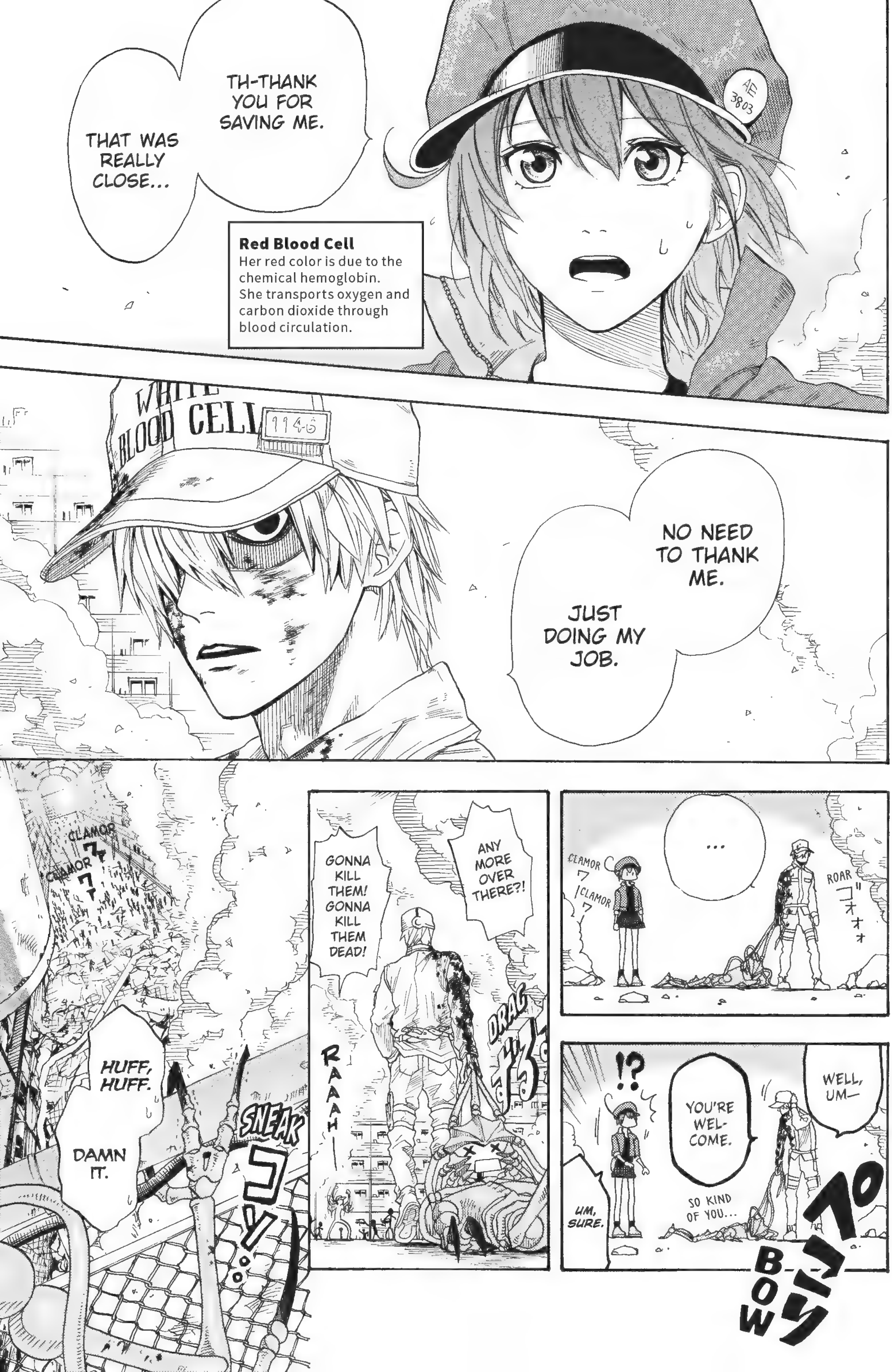

I'VE MADE UP MY MIND.
STARTING TODAY, THIS IS OUR LAND!!!
GRIN
ニヤ
AUGH
EEEE
AUGH
EEP....
GAAAH!
EEEK!
LUNGE
EEEEEEEK!
BUT FIRST, WE'VE GOTTA CLEAN OUT THESE PESKY NATIVES!
ガシ
GRAB
—HUH?


SL
ASH
GWAAAA-AAAAAA-AAAAAH!
4146


WHAT ARE THESE GUYS?!
DIE, SCUM!
GAH!
YOU BACTERIAL BASTARD!
WHAT YOU'RE SEEING IS THE INSIDE OF A HUMAN BODY.
ROゴオォオォ
WHITE BLOOD CELL
1146
FOR CELLS LIKE US, THIS IS JUST ANOTHER CHEERFUL DAY AT WORK.
RAOオォ
THIS IS WHITE BLOOD CELL NEUTROPHIL DIVISION, U-1146.
ERADICATION OF THE GERM INTRUDERS, COMPLETE!

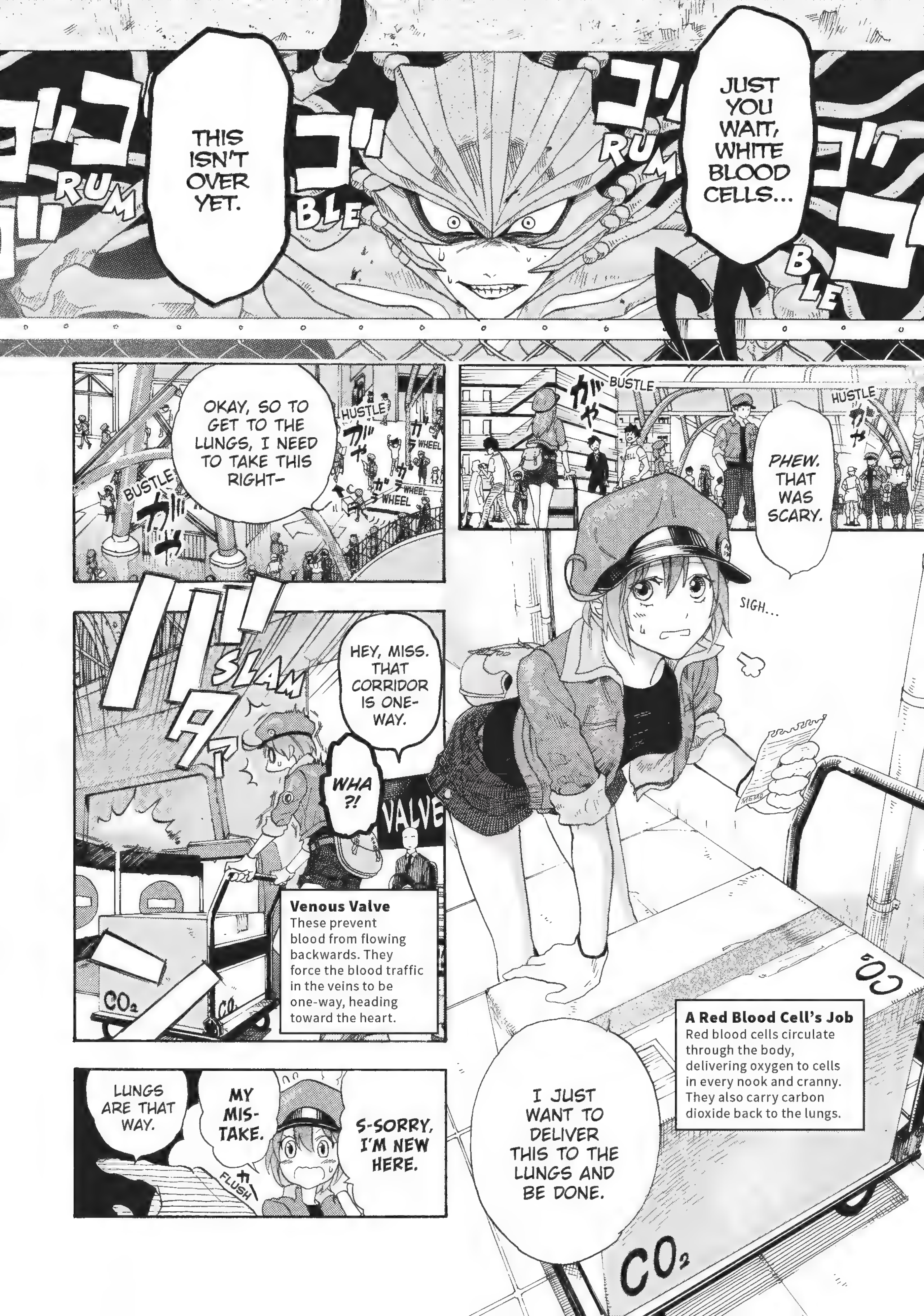
White Blood Cell (Neutrophil)
His main job is to destroy foreign substances that enter the body from the outside, such as bacteria and viruses. Neutrophils make up more than half of all white blood cells in the blood.


DON'T LET A SINGLE BACTERIUM GET AWAY! YOU GOT THAT?!
RAAAH
GOOD RIDDANCE, A FRESH START. "BYE-BYE, GERMS!" WBC
IF EVEN ONE GETS AWAY, WE'LL HAVE A REAL MESS ON OUR HANDS!!
RUB RUB
WHITE BLOOD CELL 1146
WHISPER
YEESH, IT'S A WHITE BLOOD CELL.
MAN, NO MERCY AT ALL.
HE'S COVERED IN BLOOD.
GIVES ME THE CHILLS...
HOW ABOUT OVER THERE?!
ALL CLEAR.
SO THAT'S A WHITE BLOOD CELL...
YEEESH.
WAAAH WAAAH
...
HEY, WHAT'RE YOU LOOKING AT?
YOU NEED SOMETHING?
OH, YES! WELL, UM-
POLITE
CELL



Red Blood Cell
Her red color is due to the chemical hemoglobin. She transports oxygen and carbon dioxide through blood circulation.

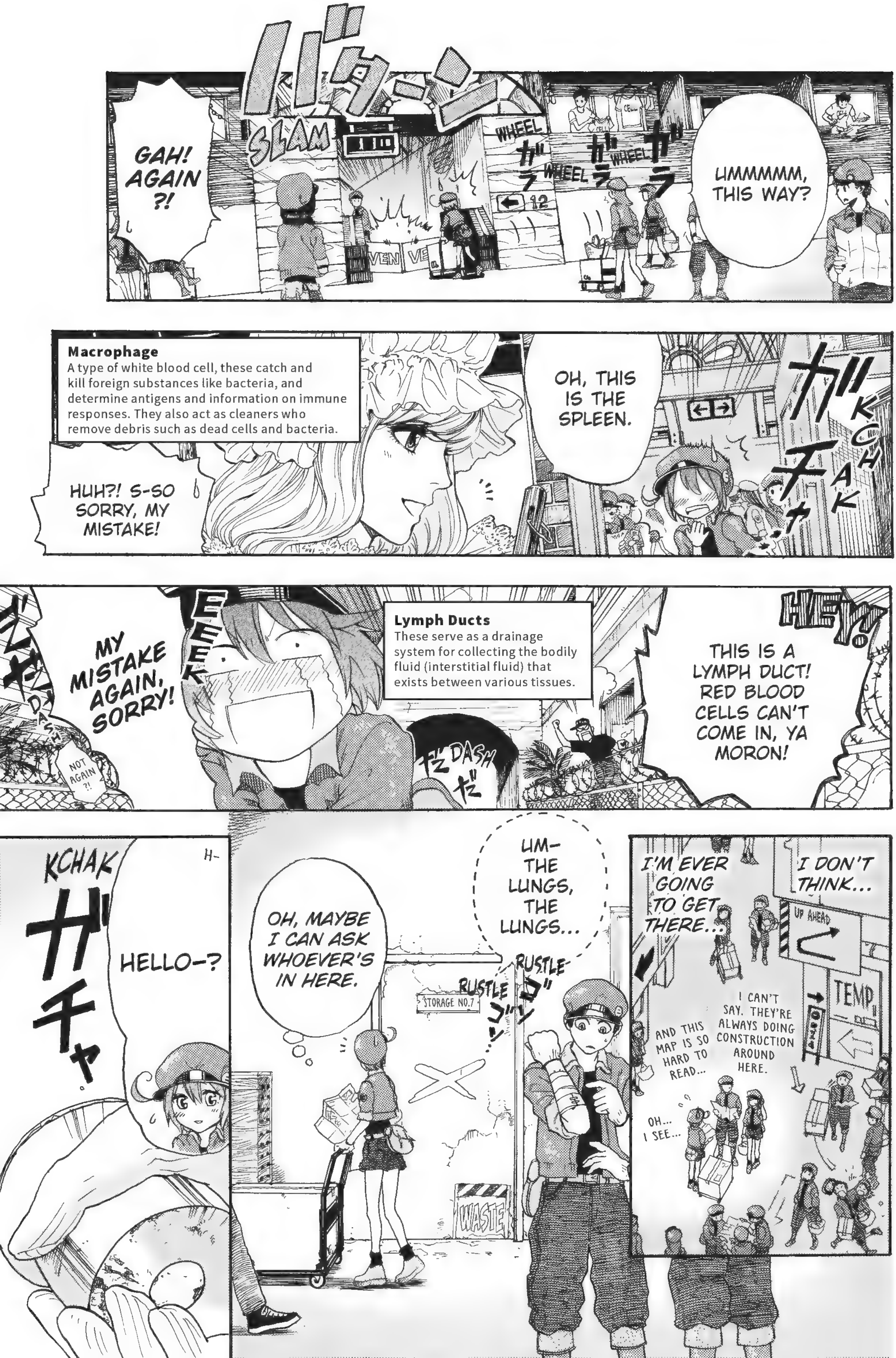
AE 3803
TH-THANK YOU FOR SAVING ME.
THAT WAS REALLY CLOSE...
WHITE BLOOD CELL 1146
NO NEED TO THANK ME.
JUST DOING MY JOB.
...
ROAR
CLAMOR
CLAMOR
ANY MORE OVER THERE?!
GONNA KILL THEM! GONNA KILL THEM DEAD!
DRAG
RAAAH
WELL, UM—
YOU'RE WEL-COME.
SO KIND OF YOU...
!?
UM, SURE.
BOW
CLAMOR
CLAMOR
HUFF, HUFF.
DAMN IT.
SNEAK



JUST YOU WAIT, WHITE BLOOD CELLS...
RUMBLE
THIS ISN'T OVER YET.
RUMBLE
ゴゴゴ
PHEW. THAT WAS SCARY.
SIGH...
BUSTLE
HUSTLE
I JUST WANT TO DELIVER THIS TO THE LUNGS AND BE DONE.
MEMO
CO2
OKAY, SO TO GET TO THE LUNGS, I NEED TO TAKE THIS RIGHT–
HUSTLE
BUSTLE
WHEEL
WHEEL
WHEEL
SLAM
HEY, MISS. THAT CORRIDOR IS ONE-WAY.
WHA?!
VALVE
CO2
S-SORRY, I'M NEW HERE.
MY MIS-TAKE.
LUNGS ARE THAT WAY.
FLUSH

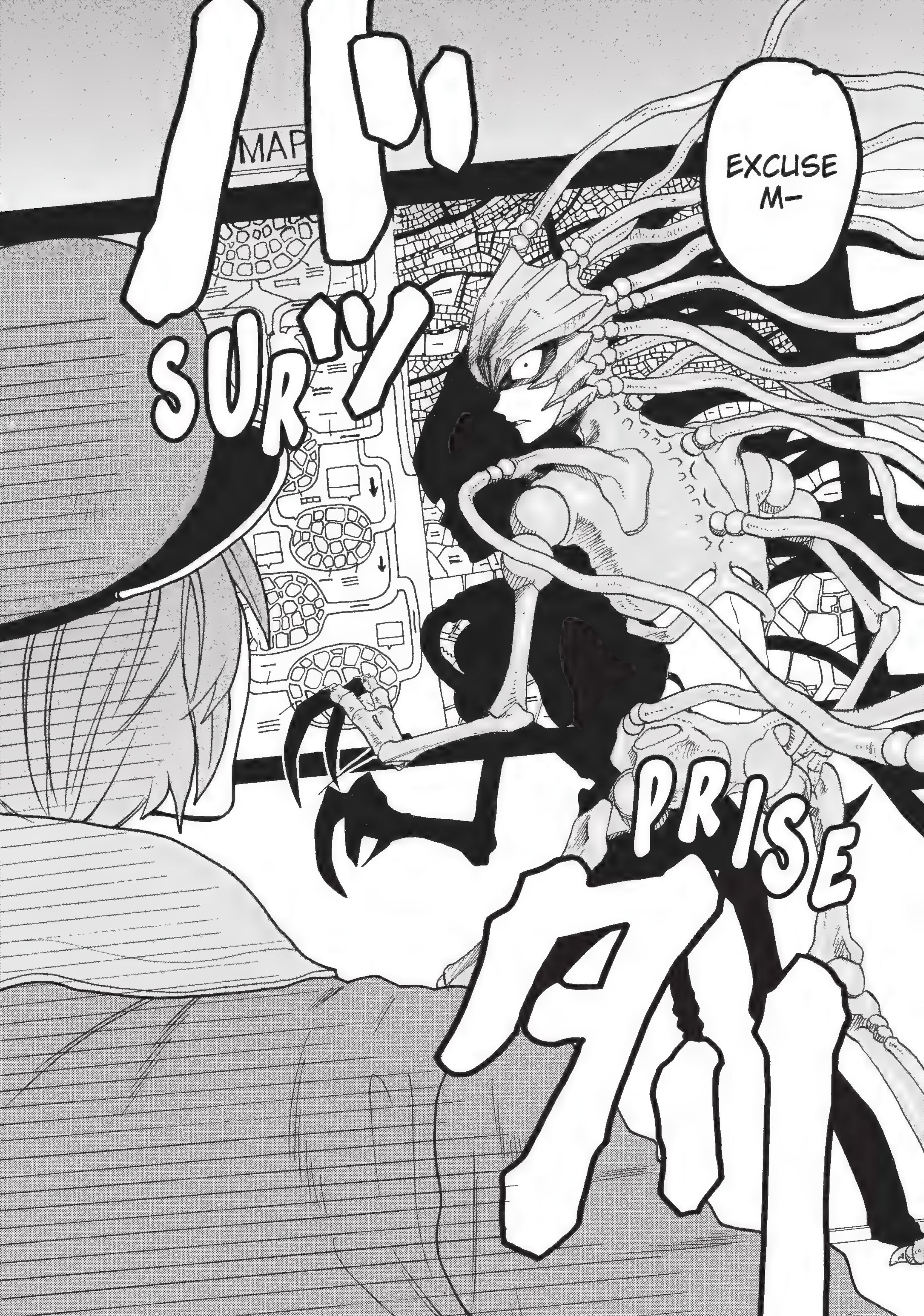
Venous Valve
These prevent blood from flowing backwards. They force the blood traffic in the veins to be one-way, heading toward the heart.

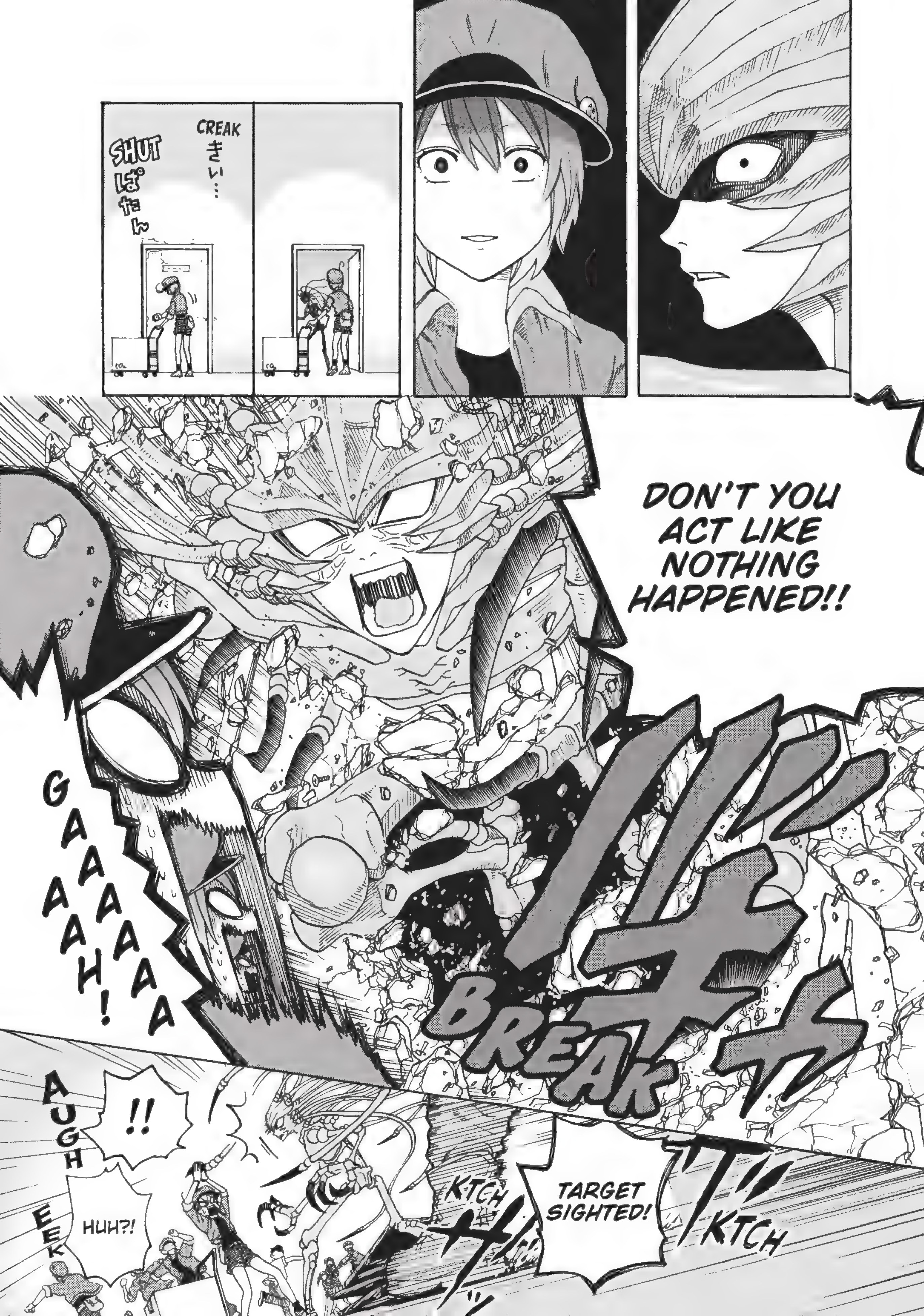
A Red Blood Cell's Job
Red blood cells circulate through the body, delivering oxygen to cells in every nook and cranny. They also carry carbon dioxide back to the lungs.

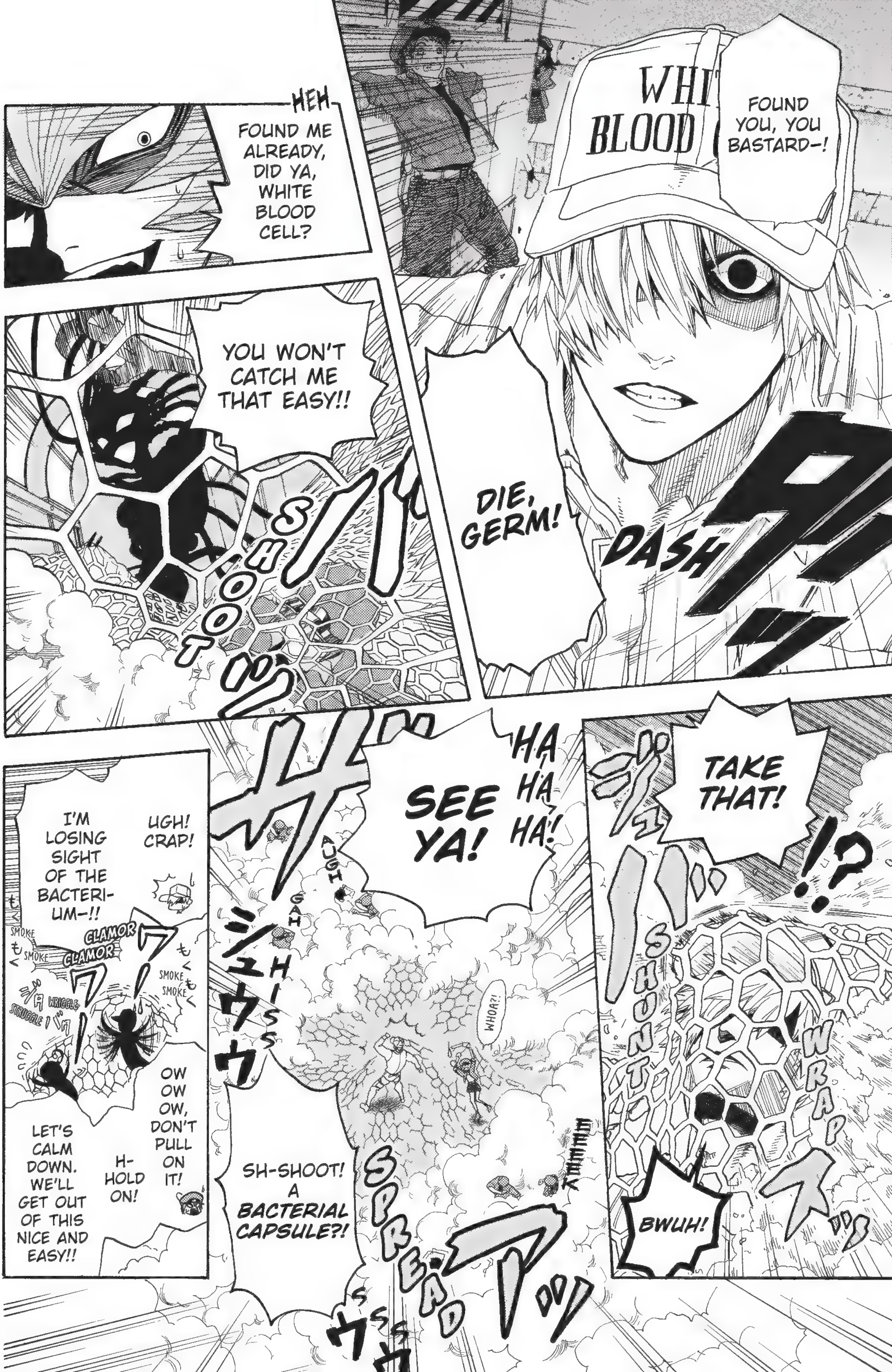

UMMMMM, THIS WAY?
WHEEL ガラ
WHEEL ガラ
WHEEL ガラ
12
SLAM
バターン
GAH! AGAIN?!
VEN
VEN
KCHAK
ガチャ
OH, THIS IS THE SPLEEN.
HUH?! S-SO SORRY, MY MISTAKE!
HEY!
THIS IS A LYMPH DUCT! RED BLOOD CELLS CAN'T COME IN, YA MORON!
DASH ダッ
EEEEK
MY MISTAKE AGAIN, SORRY!
DASH
NOT AGAIN?!
I DON'T THINK...
I'M EVER GOING TO GET THERE...
UP AHEAD
TEMP
I CAN'T SAY. THEY'RE ALWAYS DOING CONSTRUCTION AROUND HERE.
AND THIS MAP IS SO HARD TO READ...
OH... I SEE...
UM—THE LUNGS, THE LUNGS...
RUSTLE ゴソ
RUSTLE ゴソ
OH, MAYBE I CAN ASK WHOEVER'S IN HERE.
STORAGE NO.7
WASTE
H-
HELLO—?
KCHAK
ガチャ

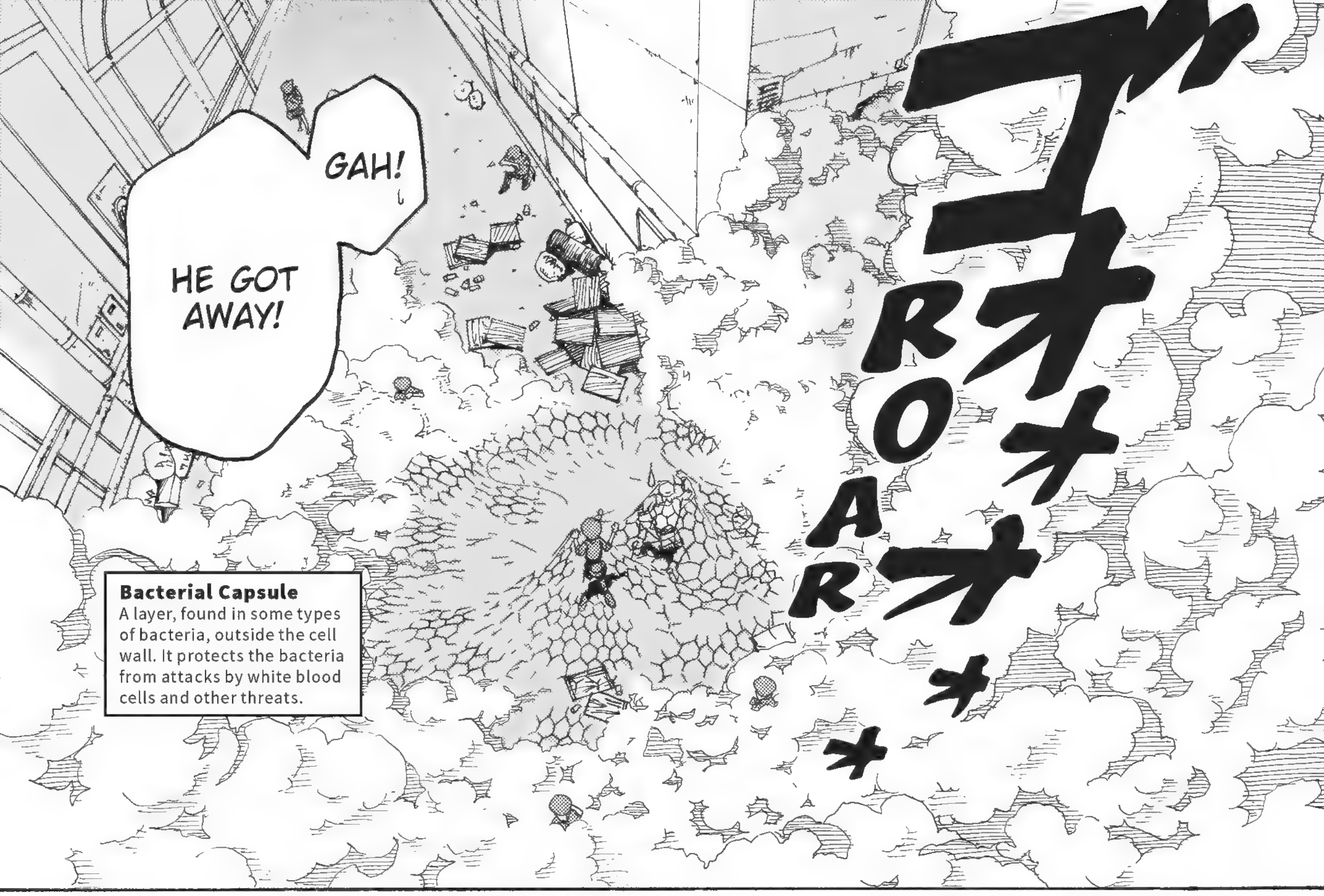
Macrophage
A type of white blood cell, these catch and kill foreign substances like bacteria, and determine antigens and information on immune responses. They also act as cleaners who remove debris such as dead cells and bacteria.

Lymph Ducts
These serve as a drainage system for collecting the bodily fluid (interstitial fluid) that exists between various tissues.

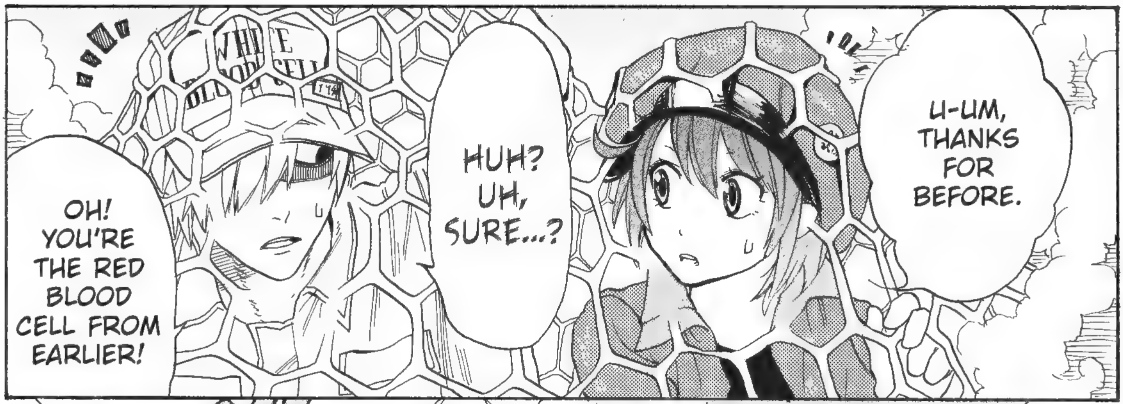

EXCUSE M-
SUR
PRISE
MAP

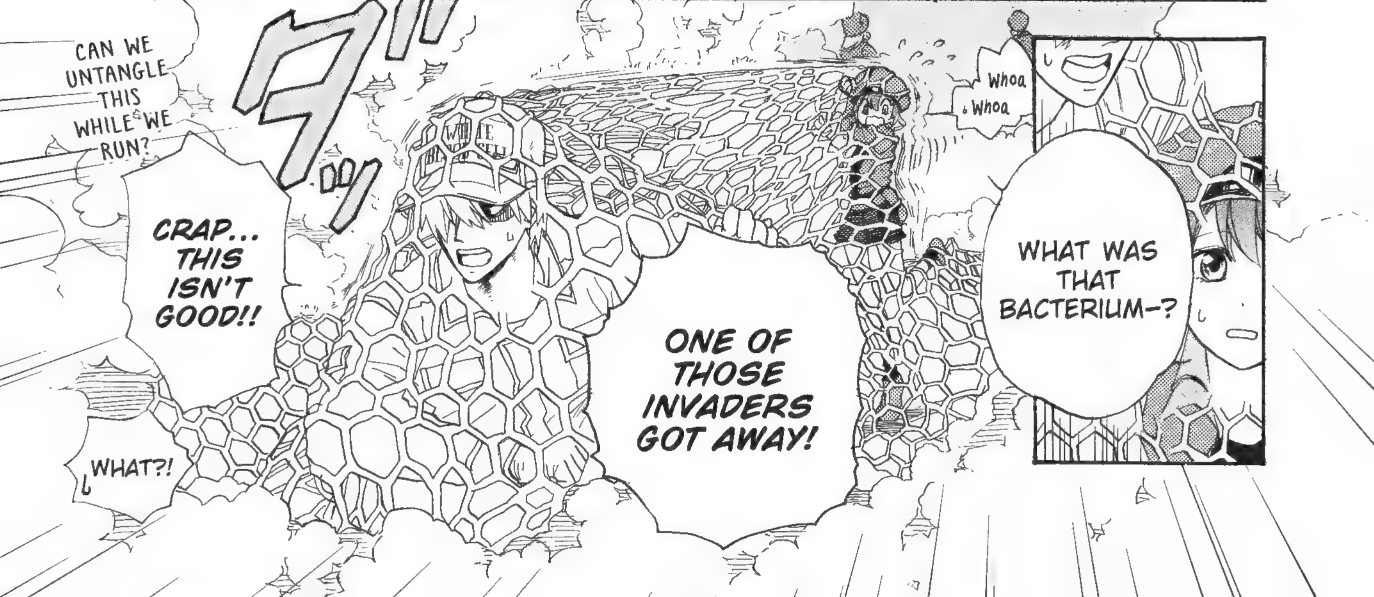

CREAK
きぃ…
SHUT
ぱたん
DON'T YOU ACT LIKE NOTHING HAPPENED!!
BREAK
GAAAAAAAAAAAAH!
!!
AUGH
EEK
HUH?!
TARGET SIGHTED!
KTCH
KTCH

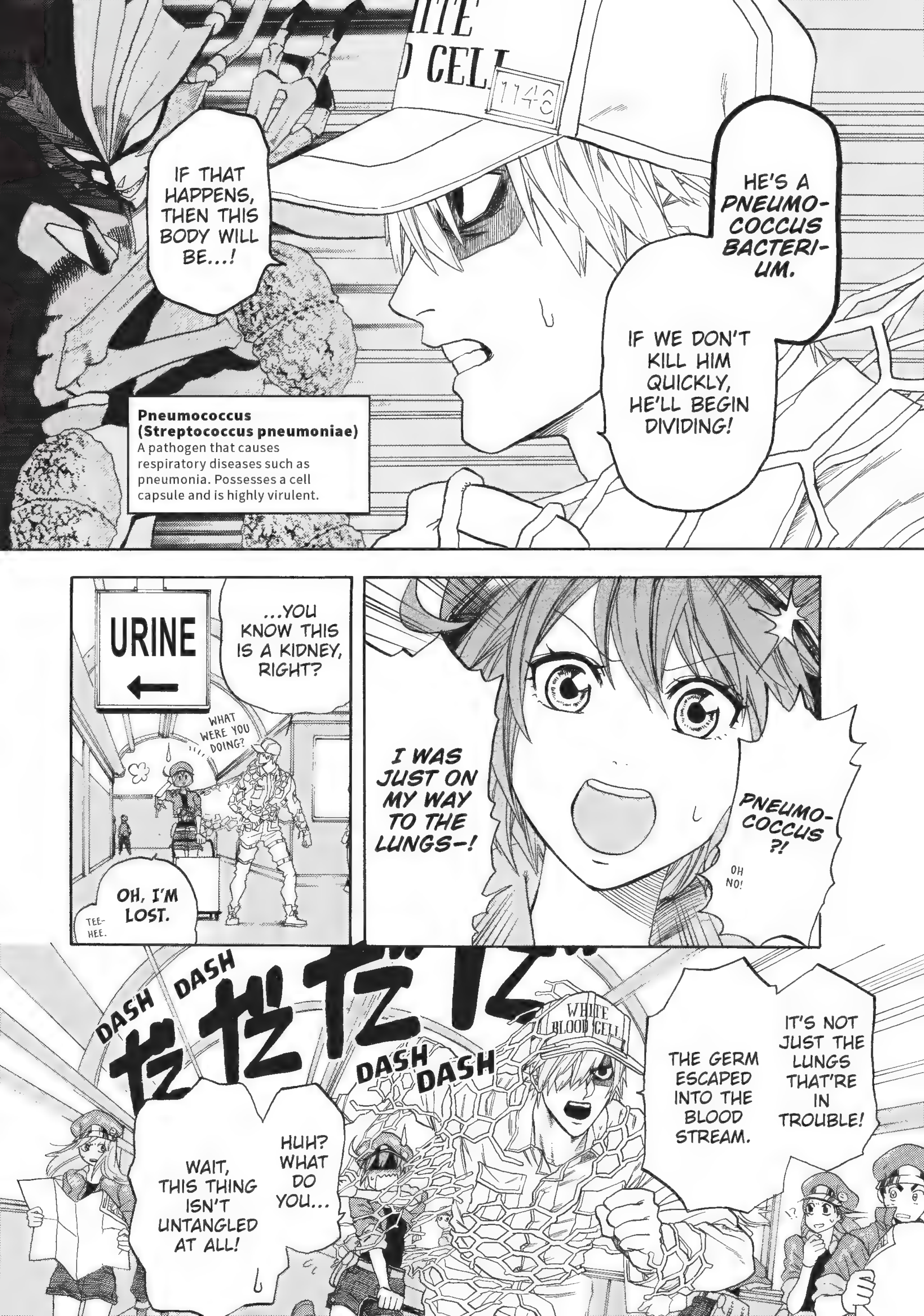

WHITE BLOOD
FOUND YOU, YOU BASTARD–!
HEH
FOUND ME ALREADY, DID YA, WHITE BLOOD CELL?
DIE, GERM!
DASH
YOU WON'T CATCH ME THAT EASY!!
SHOOT
TAKE THAT!
!?
SHUNT
WRAP
BWUH!
HA HA HA HA!
SEE YA!
AUGH
GAH
HISS
WHOA?!
EEEK
SH-SHOOT! A BACTERIAL CAPSULE?!
SPREAD
UGH! CRAP!
I'M LOSING SIGHT OF THE BACTERIUM–!!
SMOKE SMOKE
CLAMOR CLAMOR
SMOKE SMOKE
WRIGGLE
STRUGGLE
OW OW OW, DON'T PULL ON IT!
H-HOLD ON!
LET'S CALM DOWN. WE'LL GET OUT OF THIS NICE AND EASY!!


ゴオォォォ
ROAR
GAH!
HE GOT AWAY!

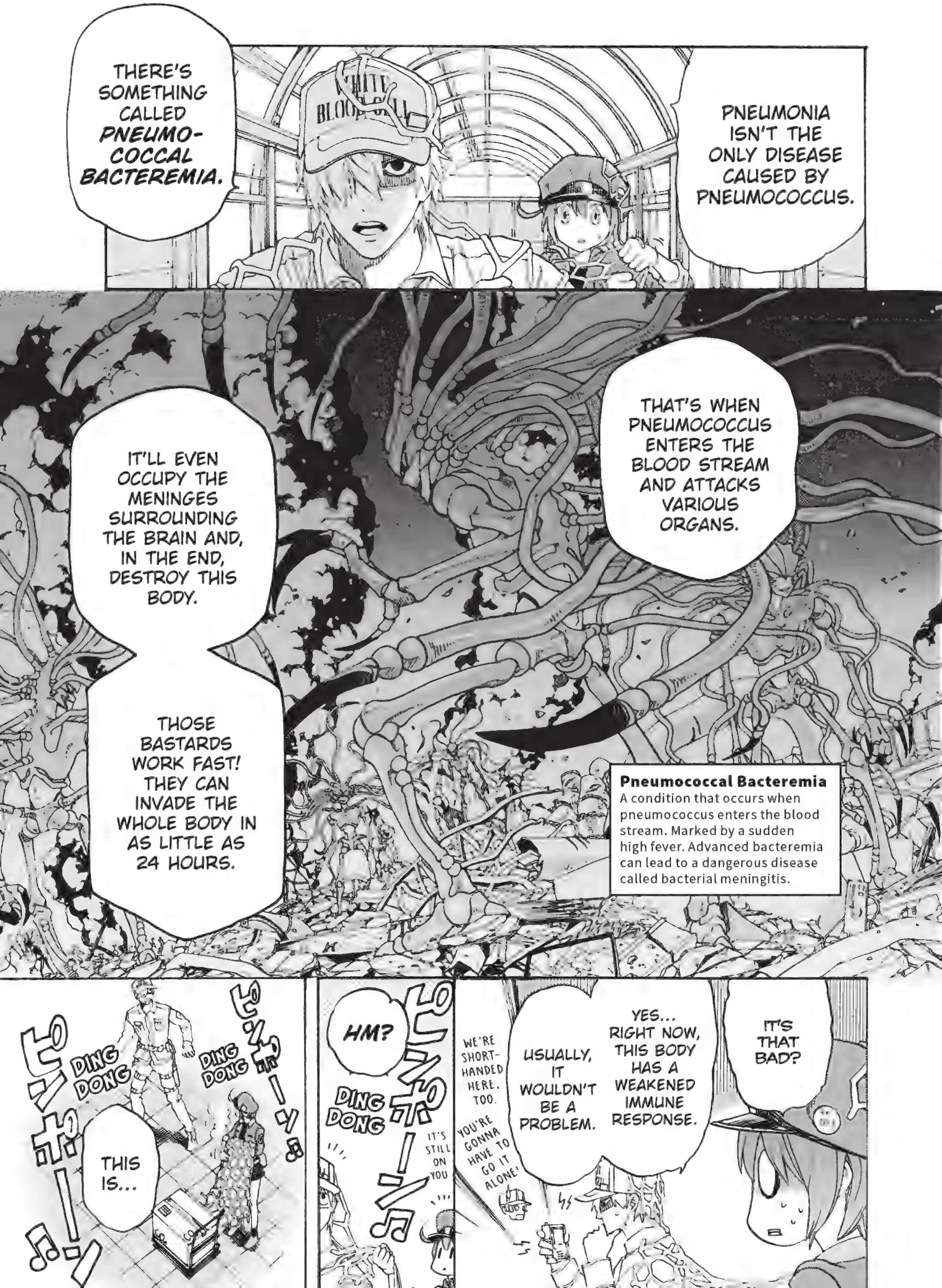
Bacterial Capsule
A layer, found in some types of bacteria, outside the cell wall. It protects the bacteria from attacks by white blood cells and other threats.


U-UM, THANKS FOR BEFORE.
HUH? UH, SURE...?
OH! YOU'RE THE RED BLOOD CELL FROM EARLIER!
WHITE BLOOD CELL

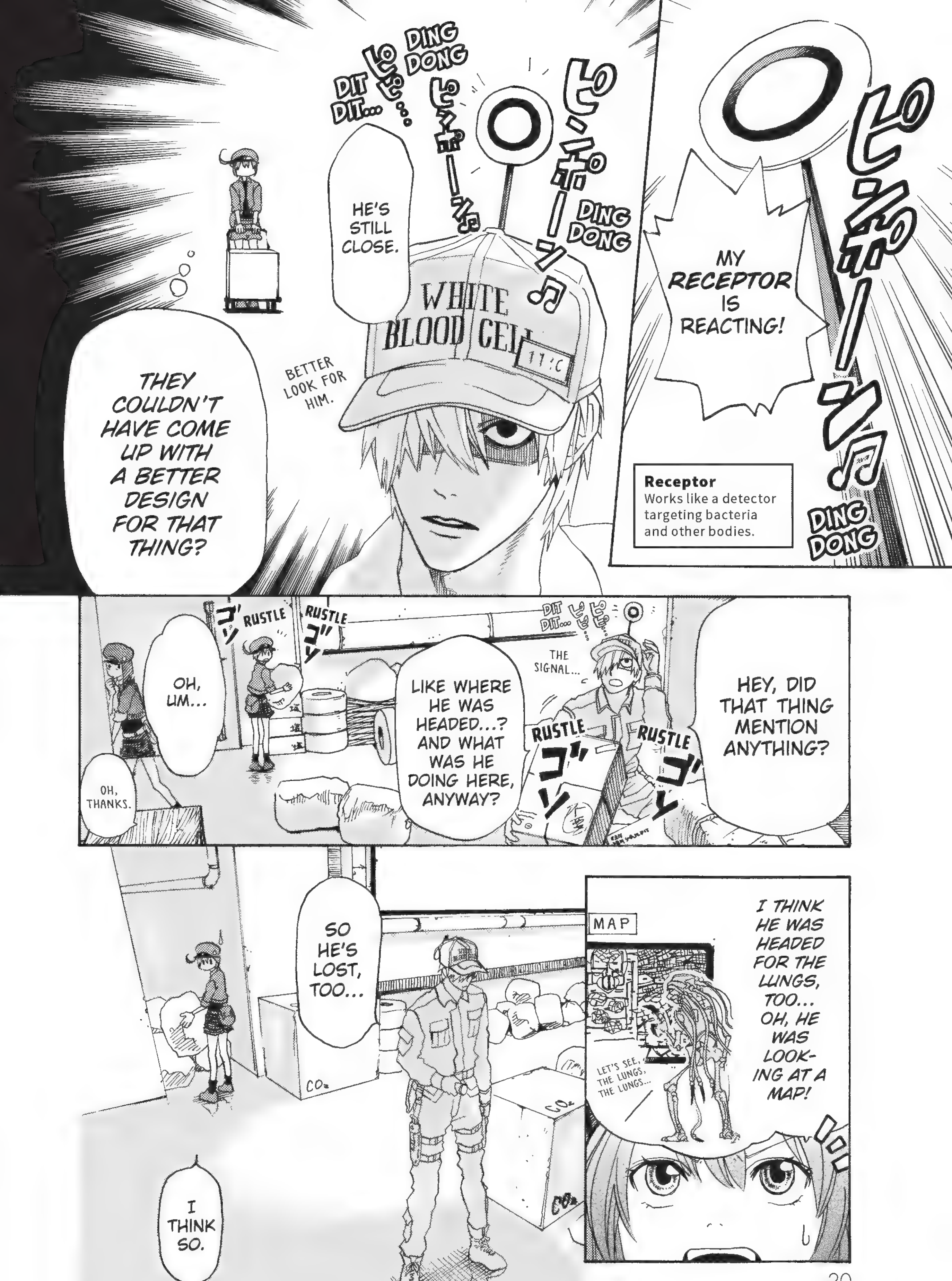

WHAT WAS THAT BACTERIUM-?
Whoa
Whoa
ONE OF THOSE INVADERS GOT AWAY!
ダッ
CRAP... THIS ISN'T GOOD!!
CAN WE UNTANGLE THIS WHILE WE RUN?
WHAT?!


WHITE BLOOD CELL
1146
HE'S A PNEUMOCOCCUS BACTERIUM.
IF WE DON'T KILL HIM QUICKLY, HE'LL BEGIN DIVIDING!
IF THAT HAPPENS, THEN THIS BODY WILL BE...!
PNEUMOCOCCUS?!
OH NO!
I WAS JUST ON MY WAY TO THE LUNGS-!
URINE
...YOU KNOW THIS IS A KIDNEY, RIGHT?
WHAT WERE YOU DOING?
OH, I'M LOST.
TEE-HEE.
IT'S NOT JUST THE LUNGS THAT'RE IN TROUBLE!
THE GERM ESCAPED INTO THE BLOODSTREAM.
WHITE BLOOD CELL
DASH DASH
DASH DASH
だだだ
HUH? WHAT DO YOU...
WAIT, THIS THING ISN'T UNTANGLED AT ALL!

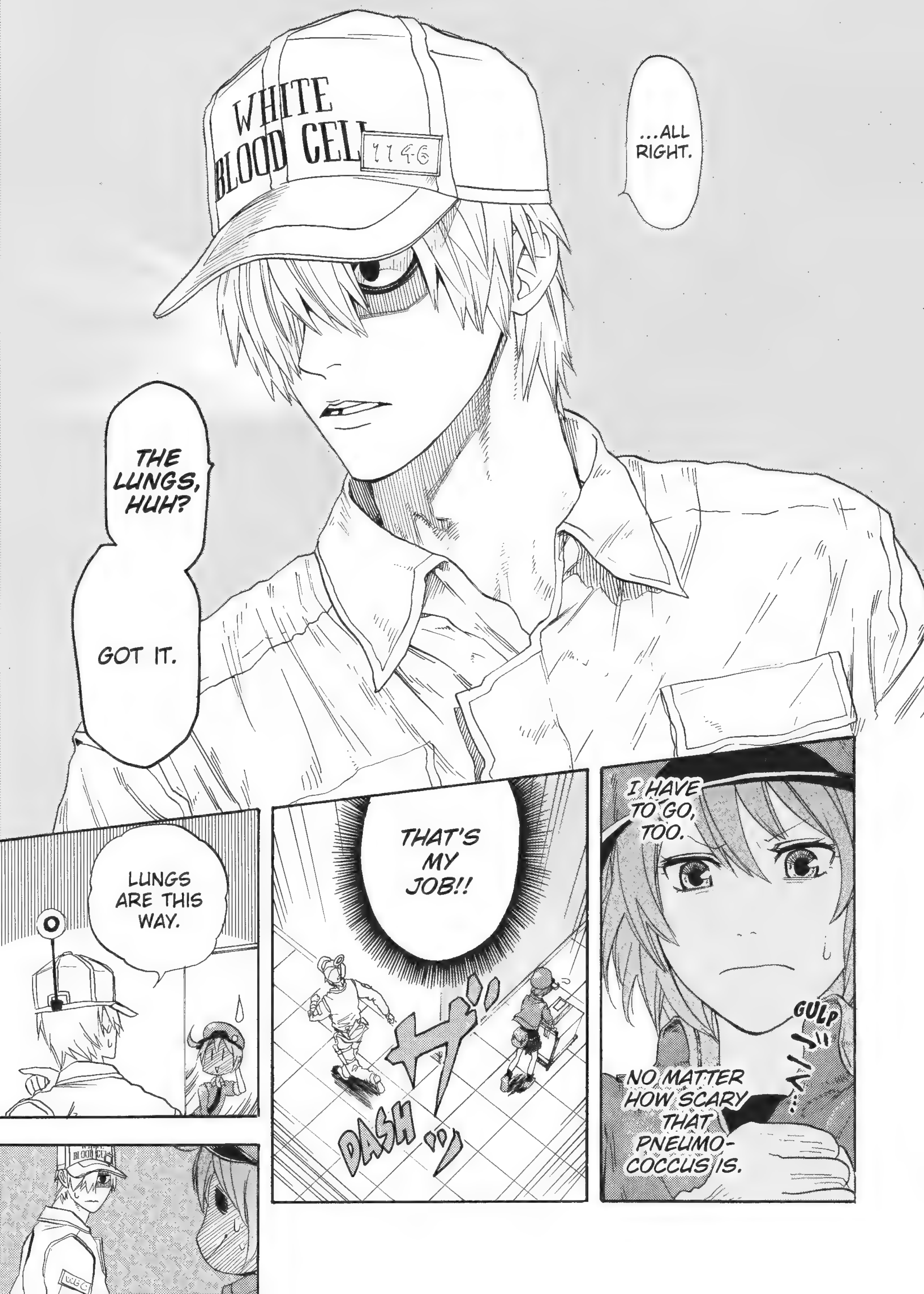
Pneumococcus (Streptococcus pneumoniae)
A pathogen that causes respiratory diseases such as pneumonia. Possesses a cell capsule and is highly virulent.

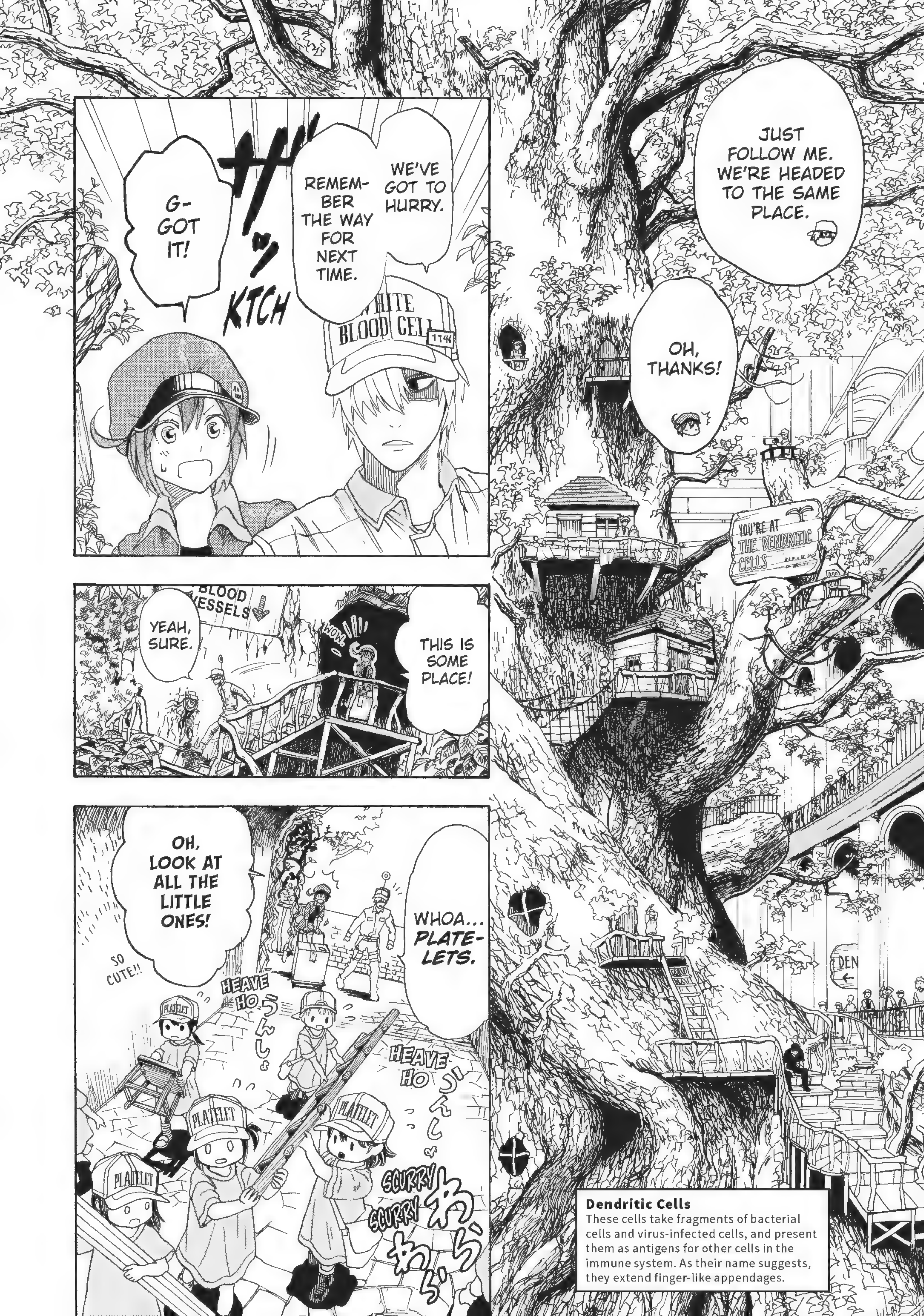

PNEUMONIA ISN'T THE ONLY DISEASE CAUSED BY PNEUMOCOCCUS.
THERE'S SOMETHING CALLED *PNEUMOCOCCAL BACTEREMIA.*
THAT'S WHEN PNEUMOCOCCUS ENTERS THE BLOOD STREAM AND ATTACKS VARIOUS ORGANS.
IT'LL EVEN OCCUPY THE MENINGES SURROUNDING THE BRAIN AND, IN THE END, DESTROY THIS BODY.
THOSE BASTARDS WORK FAST! THEY CAN INVADE THE WHOLE BODY IN AS LITTLE AS 24 HOURS.
IT'S THAT BAD?
YES... RIGHT NOW, THIS BODY HAS A WEAKENED IMMUNE RESPONSE.
USUALLY, IT WOULDN'T BE A PROBLEM.
WE'RE SHORT-HANDED HERE, TOO.
YOU'RE GONNA HAVE TO GO IT ALONE!
IT'S STILL ON YOU
HM?
ピンポーン♪
DING DONG
ピンポーン♪
DING DONG
ピンポーン♪
DING DONG
THIS IS...

Pneumococcal Bacteremia
A condition that occurs when pneumococcus enters the blood stream. Marked by a sudden high fever. Advanced bacteremia can lead to a dangerous disease called bacterial meningitis.

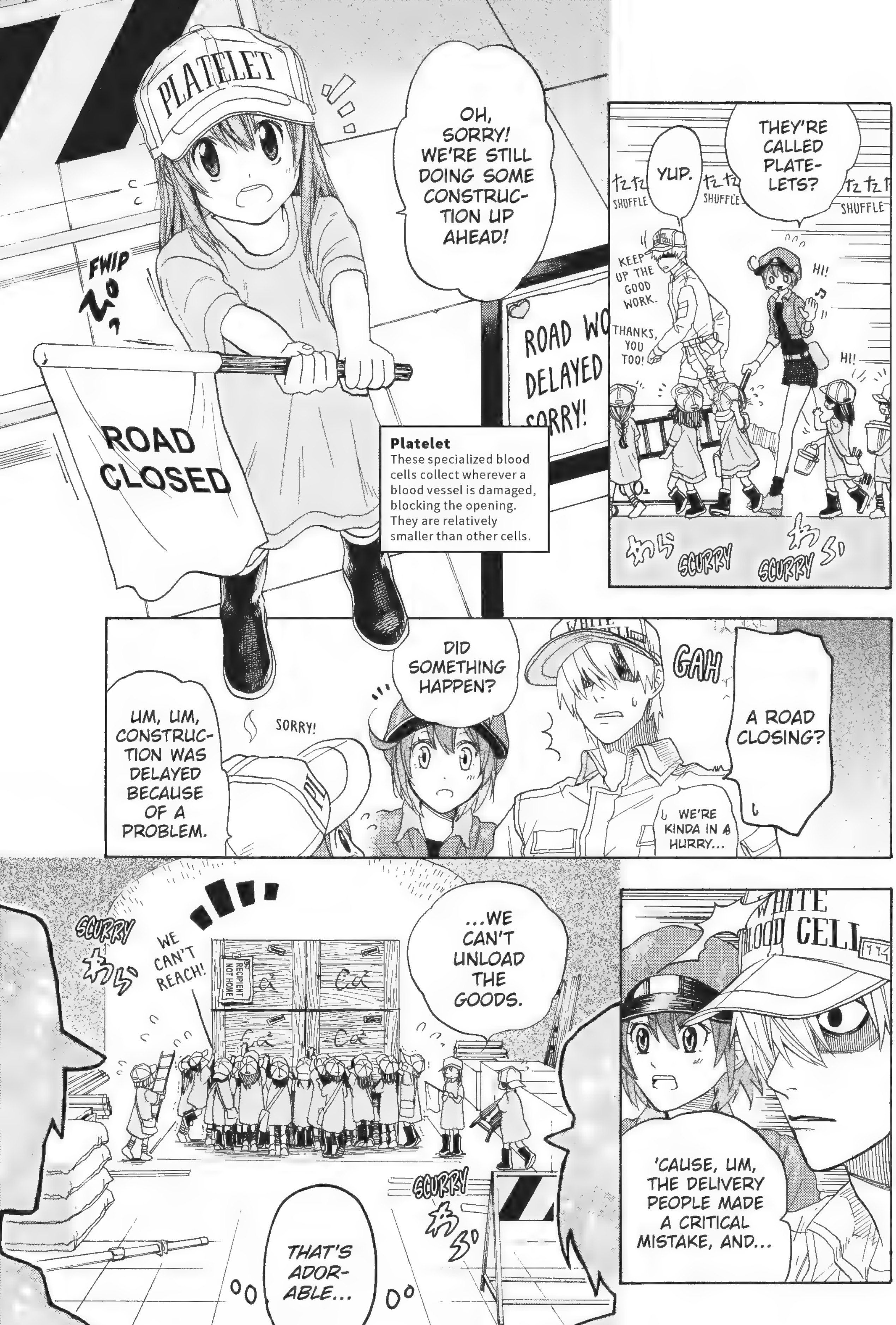

ピポーン♫
MY RECEPTOR IS REACTING!
DING DONG
ピンポーン♫
DING DONG
DING DONG
ピンポーン♫
DIT DIT...
ピピピ...
HE'S STILL CLOSE.
BETTER LOOK FOR HIM.
WHITE BLOOD CELL
1146
THEY COULDN'T HAVE COME UP WITH A BETTER DESIGN FOR THAT THING?
HEY, DID THAT THING MENTION ANYTHING?
DIT DIT...
ピピピ...
THE SIGNAL...
RUSTLE
ゴソ
RUSTLE
ゴソ
LIKE WHERE HE WAS HEADED...? AND WHAT WAS HE DOING HERE, ANYWAY?
RUSTLE
ゴソ
RUSTLE
ゴソ
OH, UM...
OH, THANKS.
I THINK HE WAS HEADED FOR THE LUNGS, TOO... OH, HE WAS LOOKING AT A MAP!
MAP
LET'S SEE, THE LUNGS, THE LUNGS...
SO HE'S LOST, TOO...
CO₂
I THINK SO.

Receptor
Works like a detector targeting bacteria and other bodies.

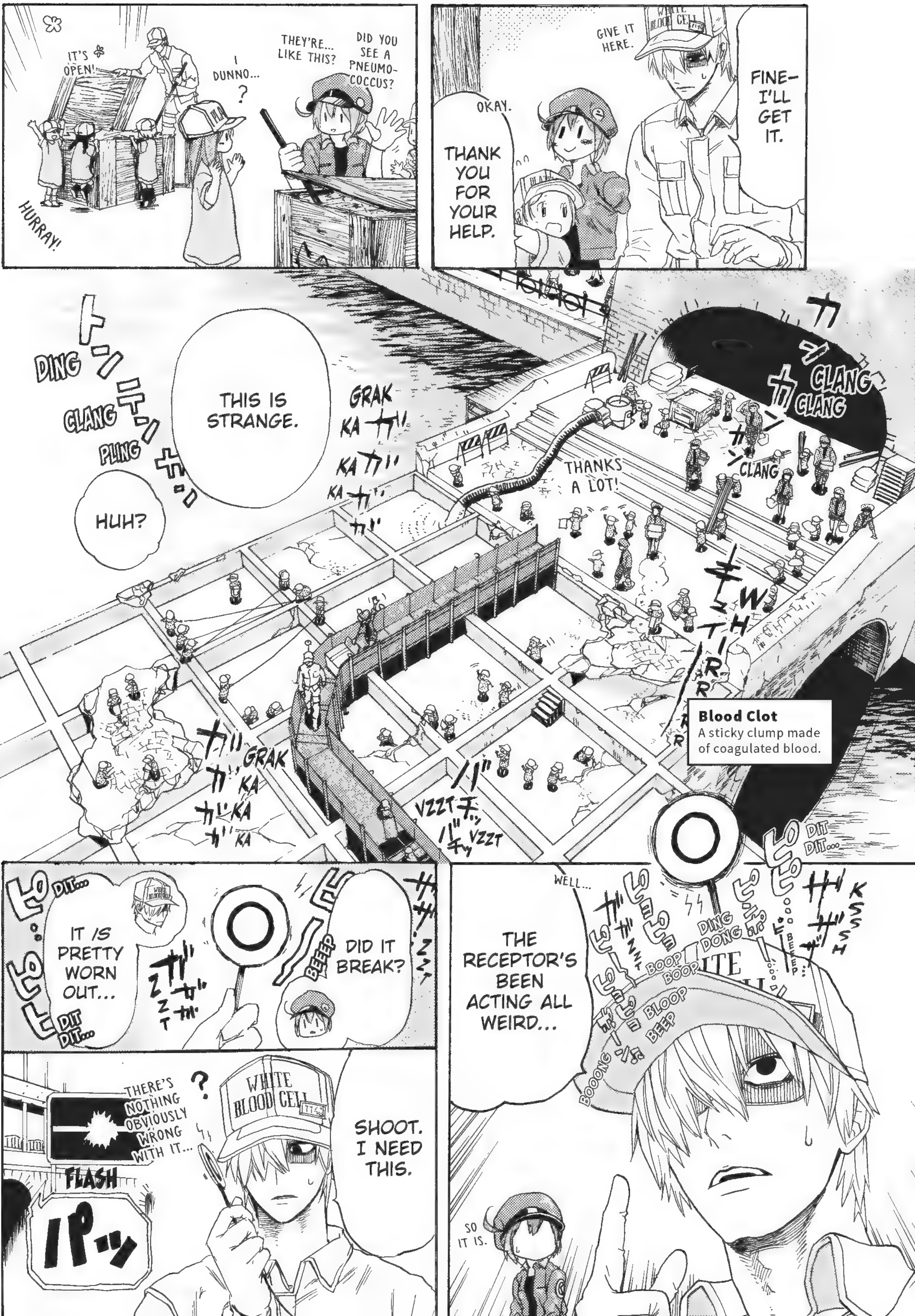

WHITE BLOOD CELL 1146
...ALL RIGHT.
THE LUNGS, HUH?
GOT IT.
I HAVE TO GO, TOO.
GULP
NO MATTER HOW SCARY THAT PNEUMOCOCCUS IS.
THAT'S MY JOB!!
DASH
LUNGS ARE THIS WAY.
WHITE BLOOD CELL
WBC


JUST FOLLOW ME. WE'RE HEADED TO THE SAME PLACE.
OH, THANKS!
YOU'RE AT THE DENDRITIC CELLS
DEN ←
WE'VE GOT TO HURRY.
REMEMBER THE WAY FOR NEXT TIME.
ザッ
KTCH
G-GOT IT!
WHITE BLOOD CELL
THIS IS SOME PLACE!
WOW.
YEAH, SURE.
BLOOD VESSELS
WHOA... PLATELETS.
OH, LOOK AT ALL THE LITTLE ONES!
SO CUTE!!
HEAVE HO
うんしょ
HEAVE HO
うんしょ
PLATELET
SCURRY SCURRY
わらわら

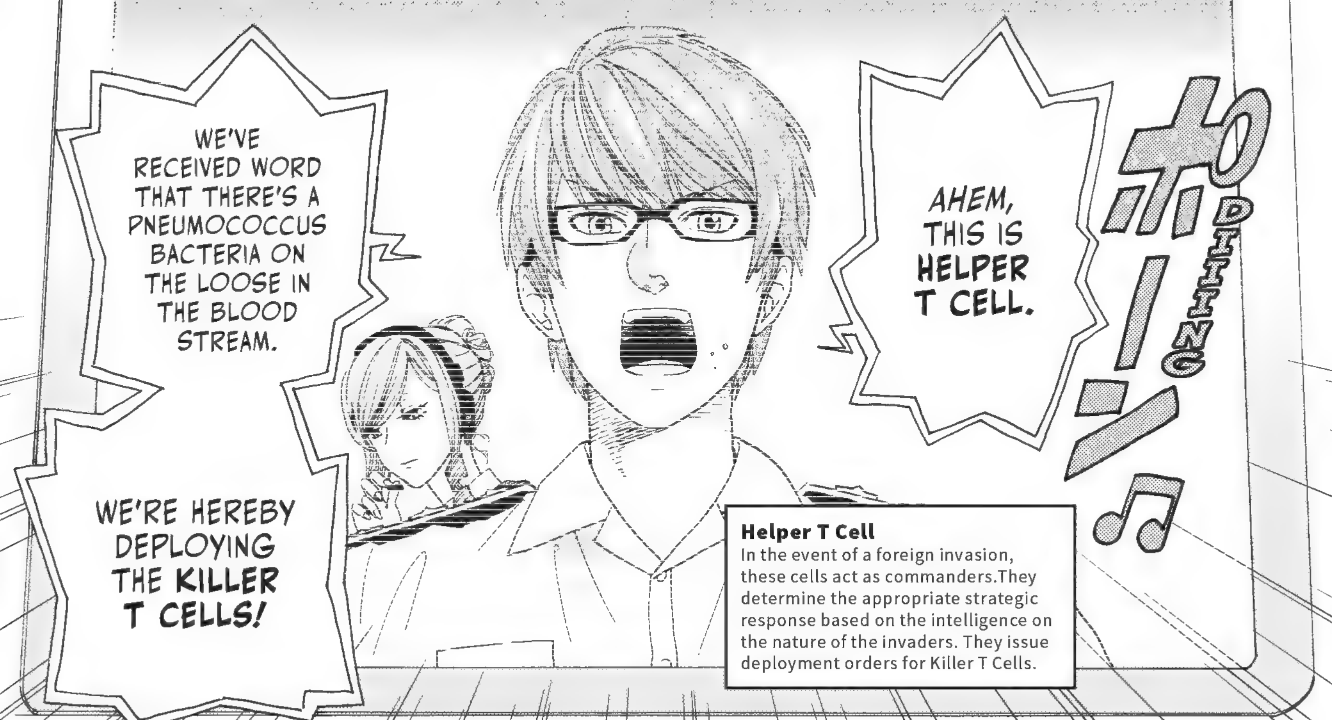
Dendritic Cells
These cells take fragments of bacterial cells and virus-infected cells, and present them as antigens for other cells in the immune system. As their name suggests, they extend finger-like appendages.


THEY'RE CALLED PLATE-LETS?
YUP.
たたた SHUFFLE
たたた SHUFFLE
たたた SHUFFLE
HI!
KEEP UP THE GOOD WORK.
THANKS, YOU TOO!
HI!
わら SCURRY
わら SCURRY
PLATELET
OH, SORRY! WE'RE STILL DOING SOME CONSTRUC-TION UP AHEAD!
FWIP
ROAD WO DELAYED SORRY!
ROAD CLOSED
A ROAD CLOSING?
GAH
WE'RE KINDA IN A HURRY...
DID SOMETHING HAPPEN?
SORRY!
UM, UM, CONSTRUC-TION WAS DELAYED BECAUSE OF A PROBLEM.
WHITE BLOOD CELL
'CAUSE, UM, THE DELIVERY PEOPLE MADE A CRITICAL MISTAKE, AND...
...WE CAN'T UNLOAD THE GOODS.
SCURRY わら
WE CAN'T REACH!
RECIPIENT NOT HOME
SCURRY わら
THAT'S ADOR-ABLE...

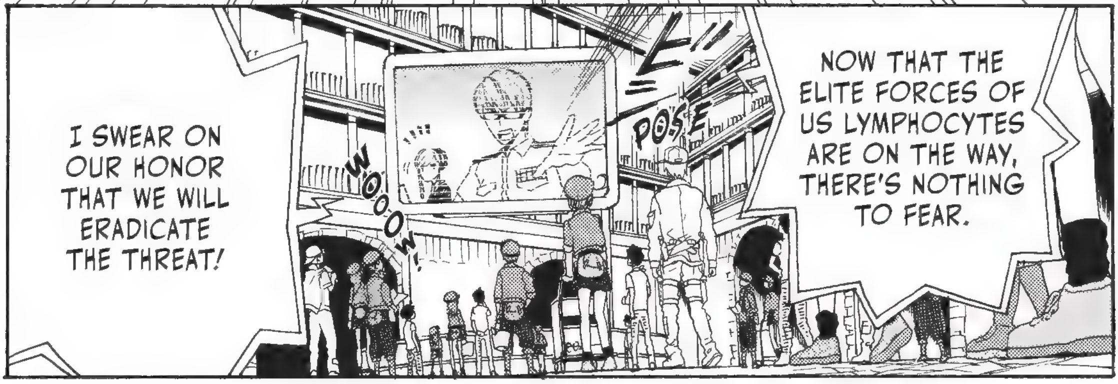
Platelet
These specialized blood cells collect wherever a blood vessel is damaged, blocking the opening. They are relatively smaller than other cells.

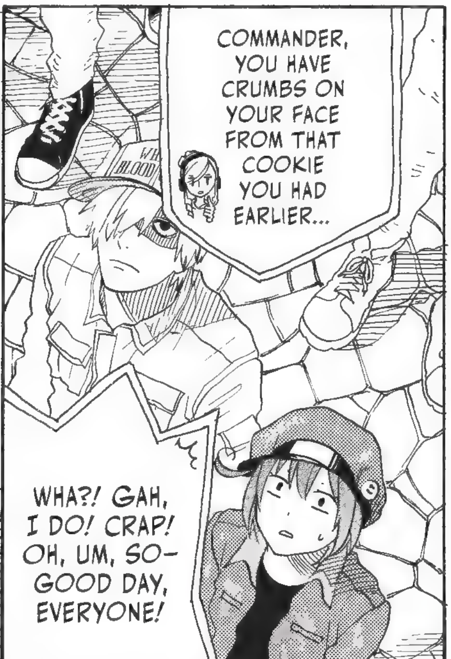

GIVE IT HERE.
FINE— I'LL GET IT.
OKAY.
THANK YOU FOR YOUR HELP.
DID YOU SEE A PNEUMO-COCCUS?
THEY'RE... LIKE THIS?
I DUNNO... ?
IT'S ✿ OPEN!
HURRAY!
カッ CLANG カン CLANG
カン CLANG
THIS IS STRANGE.
HUH?
トン DING
テン CLANG
チャン PLING
GRAK KA ガ KA ガ KA ガ
THANKS A LOT!
キュイイ WHIRRR
ガ GRAK KA ガ KA ガ KA
バチッ VZZT バチッ VZZT
ピ DIT DIT...
WELL...
THE RECEPTOR'S BEEN ACTING ALL WEIRD...
ピコ BOOP BOOP ピコ BLOOP BEEP BOOONG DING DONG BEEP ザザ KSSH
DID IT BREAK?
BEEP ザザ
IT IS PRETTY WORN OUT...
ピ DIT... ピ DIT DIT...
SHOOT. I NEED THIS.
THERE'S NOTHING OBVIOUSLY WRONG WITH IT...
?
パッ FLASH
SO IT IS.
WHITE BLOOD CELL

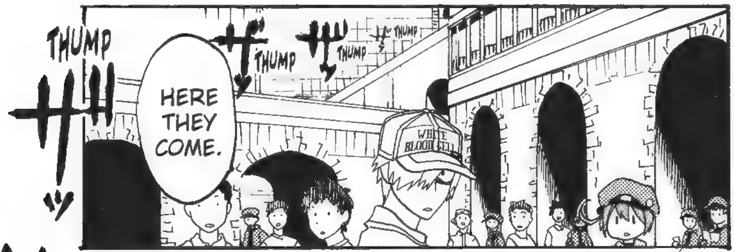
Blood Clot
A sticky clump made of coagulated blood.

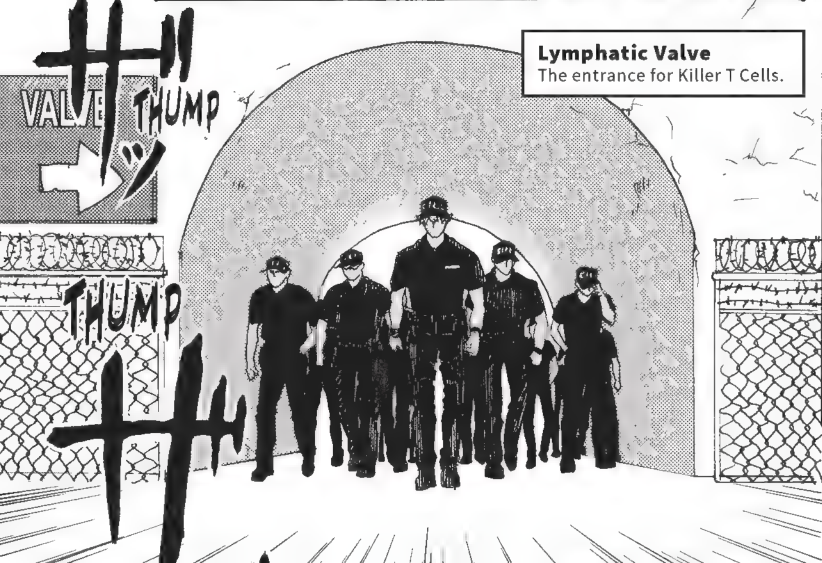

AHEM, THIS IS HELPER T CELL.
DIIIING
WE'VE RECEIVED WORD THAT THERE'S A PNEUMOCOCCUS BACTERIA ON THE LOOSE IN THE BLOOD STREAM.
WE'RE HEREBY DEPLOYING THE KILLER T CELLS!

Helper T Cell
In the event of a foreign invasion, these cells act as commanders.They determine the appropriate strategic response based on the intelligence on the nature of the invaders. They issue deployment orders for Killer T Cells.

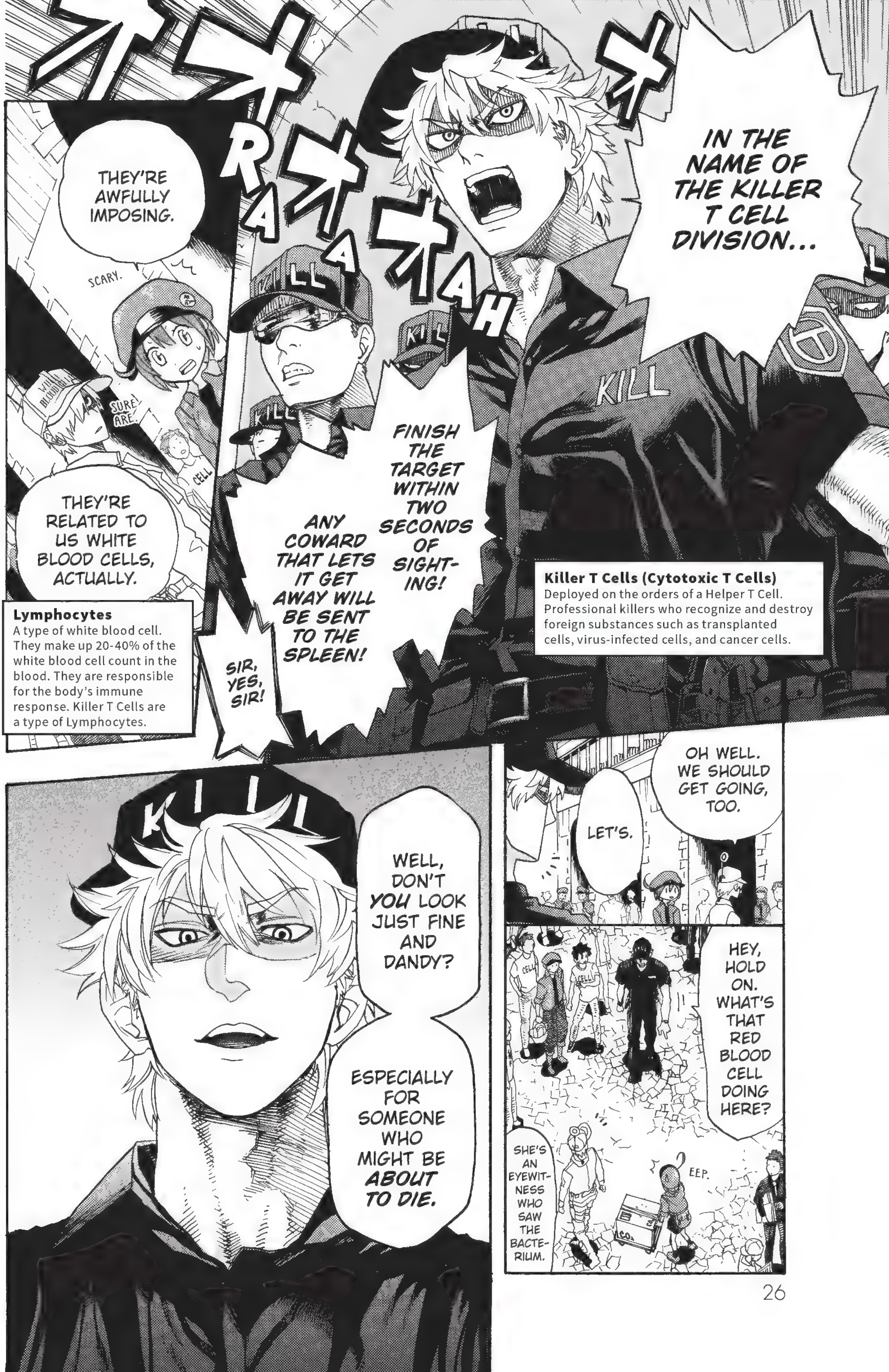

NOW THAT THE ELITE FORCES OF US LYMPHOCYTES ARE ON THE WAY, THERE'S NOTHING TO FEAR.
POSE
WOOOW
I SWEAR ON OUR HONOR THAT WE WILL ERADICATE THE THREAT!


COMMANDER, YOU HAVE CRUMBS ON YOUR FACE FROM THAT COOKIE YOU HAD EARLIER...
WHA?! GAH, I DO! CRAP! OH, UM, SO- GOOD DAY, EVERYONE!
BZZT


THUMP
THUMP
THUMP
THUMP
HERE THEY COME.

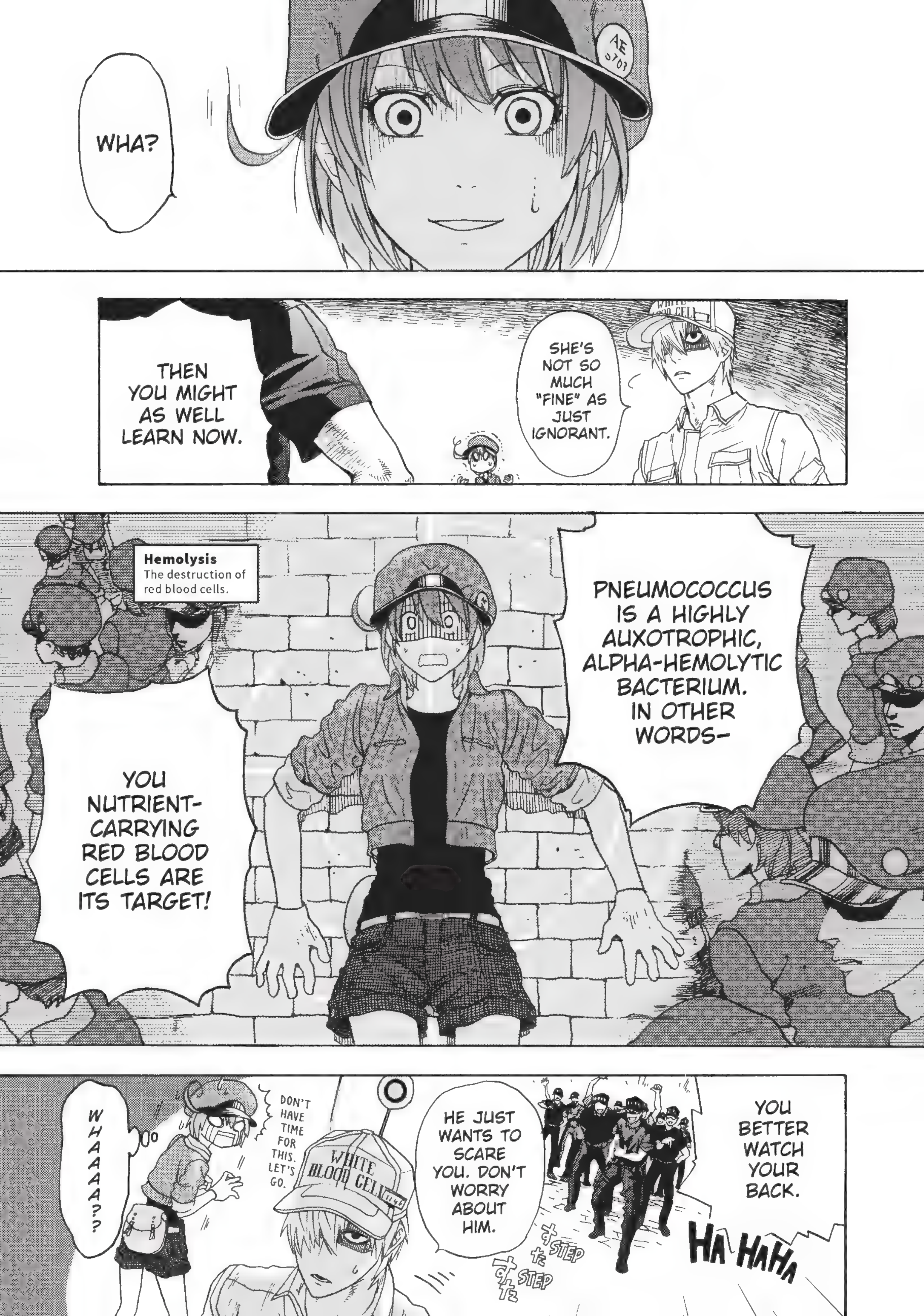

VALVE
THUMP
THUMP

Lymphatic Valve
The entrance for Killer T Cells.

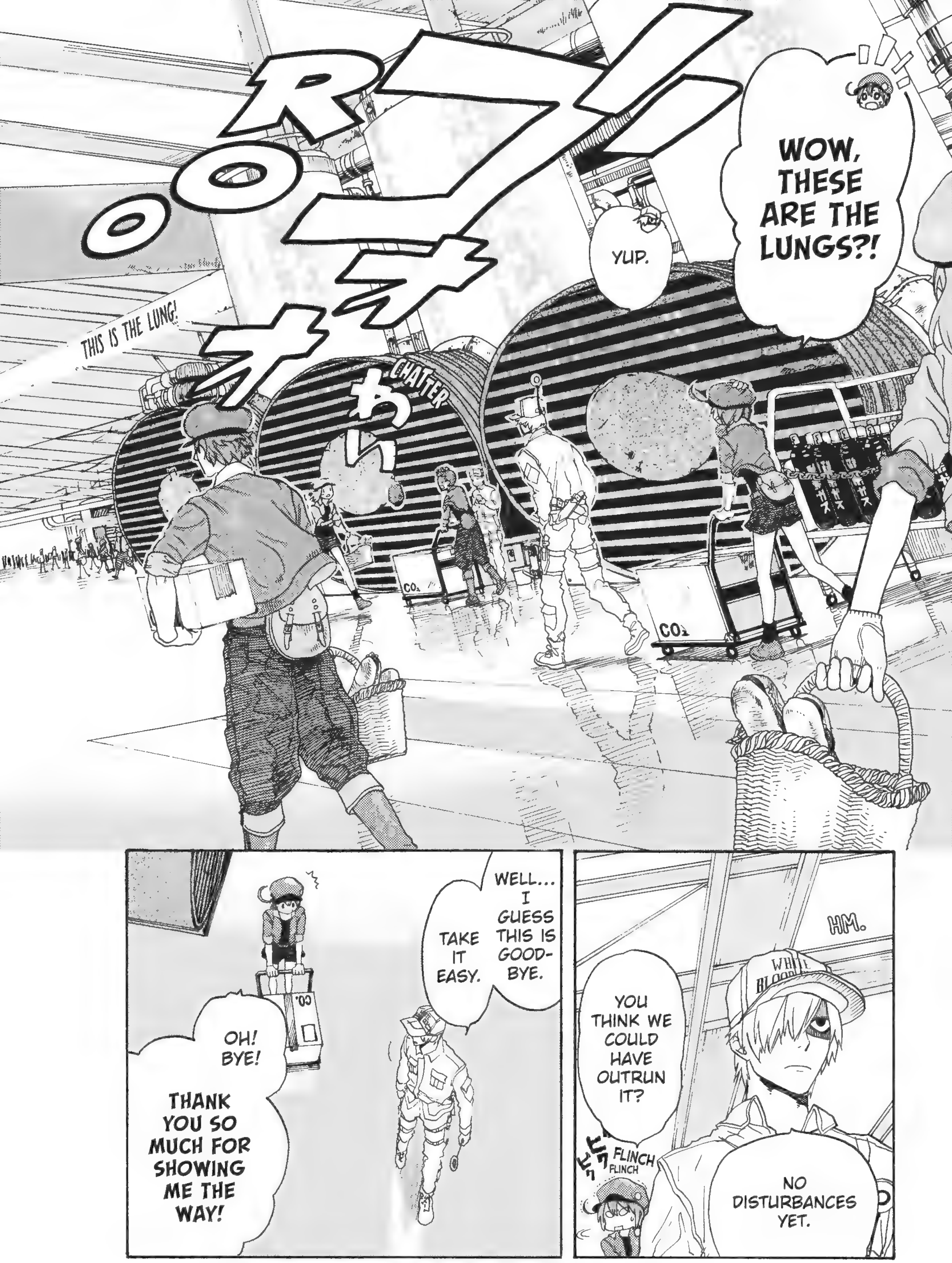

IN THE NAME OF THE KILLER T CELL DIVISION...
RAAAAH
FINISH THE TARGET WITHIN TWO SECONDS OF SIGHTING!
ANY COWARD THAT LETS IT GET AWAY WILL BE SENT TO THE SPLEEN!
SIR, YES, SIR!
KILL
THEY'RE AWFULLY IMPOSING.
SCARY.
SURE ARE.
THEY'RE RELATED TO US WHITE BLOOD CELLS, ACTUALLY.
CELL
OH WELL. WE SHOULD GET GOING, TOO.
LET'S.
HEY, HOLD ON. WHAT'S THAT RED BLOOD CELL DOING HERE?
SHE'S AN EYEWITNESS WHO SAW THE BACTERIUM.
EEP.
CO₂
WELL, DON'T *YOU* LOOK JUST FINE AND DANDY?
ESPECIALLY FOR SOMEONE WHO MIGHT BE *ABOUT TO DIE.*

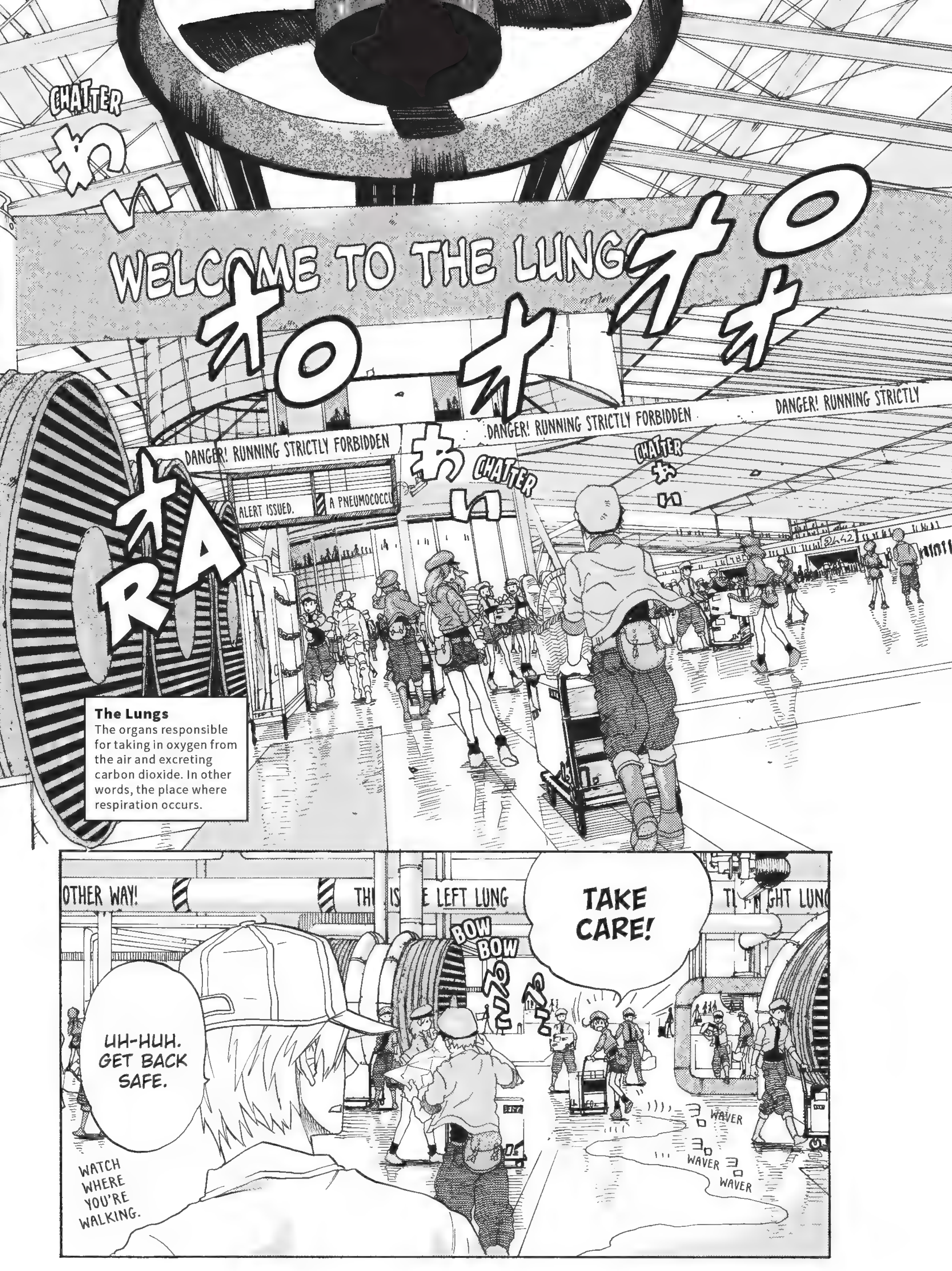
Killer T Cells (Cytotoxic T Cells)
Deployed on the orders of a Helper T Cell. Professional killers who recognize and destroy foreign substances such as transplanted cells, virus-infected cells, and cancer cells.

Lymphocytes
A type of white blood cell. They make up 20-40% of the white blood cell count in the blood. They are responsible for the body's immune response. Killer T Cells are a type of Lymphocytes.

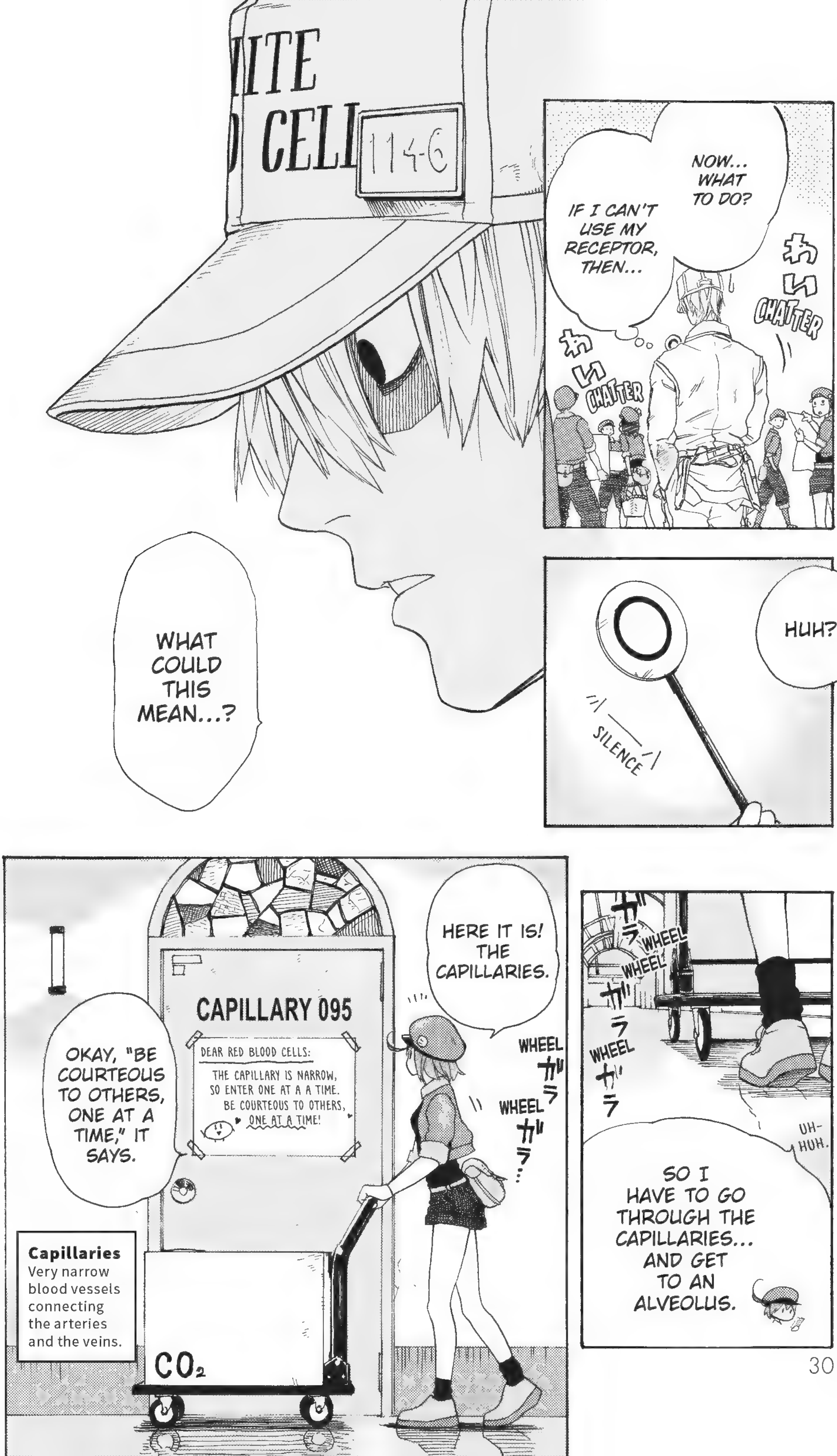

AE 3803
WHA?
WHITE BLOOD CELL
SHE'S NOT SO MUCH "FINE" AS JUST IGNORANT.
THEN YOU MIGHT AS WELL LEARN NOW.
PNEUMOCOCCUS IS A HIGHLY AUXOTROPHIC, ALPHA-HEMOLYTIC BACTERIUM. IN OTHER WORDS—
YOU NUTRIENT-CARRYING RED BLOOD CELLS ARE ITS TARGET!
YOU BETTER WATCH YOUR BACK.
HA HAHAHA
すた STEP
すた STEP
HE JUST WANTS TO SCARE YOU. DON'T WORRY ABOUT HIM.
WHITE BLOOD CELL 1146
DON'T HAVE TIME FOR THIS. LET'S GO.
WHAAAAA?!?

Hemolysis
The destruction of red blood cells.

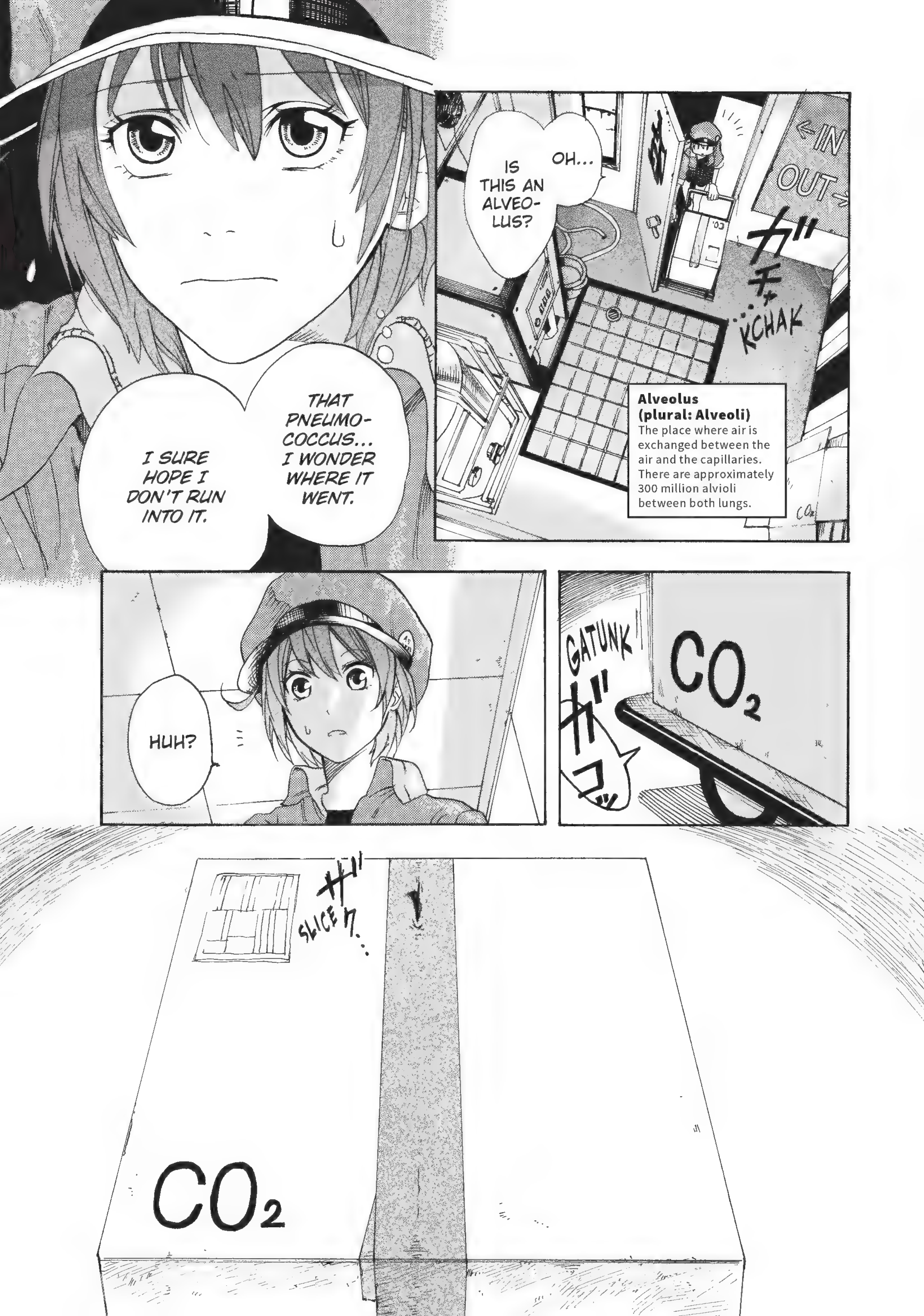

ROO!
ーオオ
WOW, THESE ARE THE LUNGS?!
YUP.
CHATTER
わい
THIS IS THE LUNG!
CO₂
CO₂
HM.
YOU THINK WE COULD HAVE OUTRUN IT?
NO DISTURBANCES YET.
FLINCH FLINCH
WELL... I GUESS THIS IS GOOD-BYE.
TAKE IT EASY.
OH! BYE!
THANK YOU SO MUCH FOR SHOWING ME THE WAY!
CO₂


CHATTER わい
WELCOME TO THE LUNGS
オオオオォ
RA
DANGER! RUNNING STRICTLY FORBIDDEN
DANGER! RUNNING STRICTLY FORBIDDEN
DANGER! RUNNING STRICTLY
ALERT ISSUED.
A PNEUMOCOCCU
わい CHATTER
CHATTER わい
OTHER WAY!
THI IS E LEFT LUNG
TI GHT LUNG
TAKE CARE!
BOW BOW ぺこぺこ
UH-HUH. GET BACK SAFE.
WATCH WHERE YOU'RE WALKING.
ヨロ WAVER
ヨロ WAVER
ヨロ WAVER

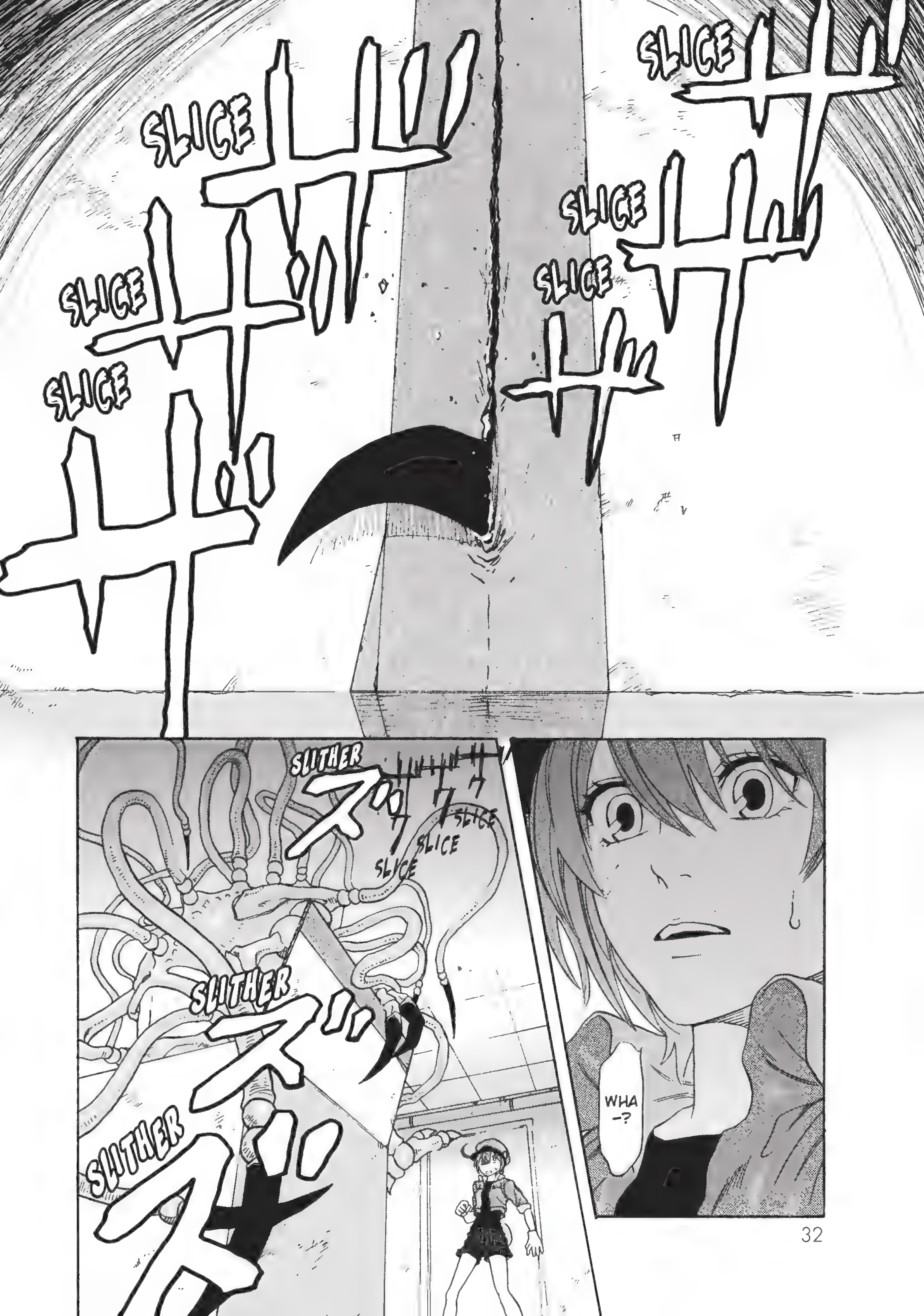
The Lungs
The organs responsible for taking in oxygen from the air and excreting carbon dioxide. In other words, the place where respiration occurs.

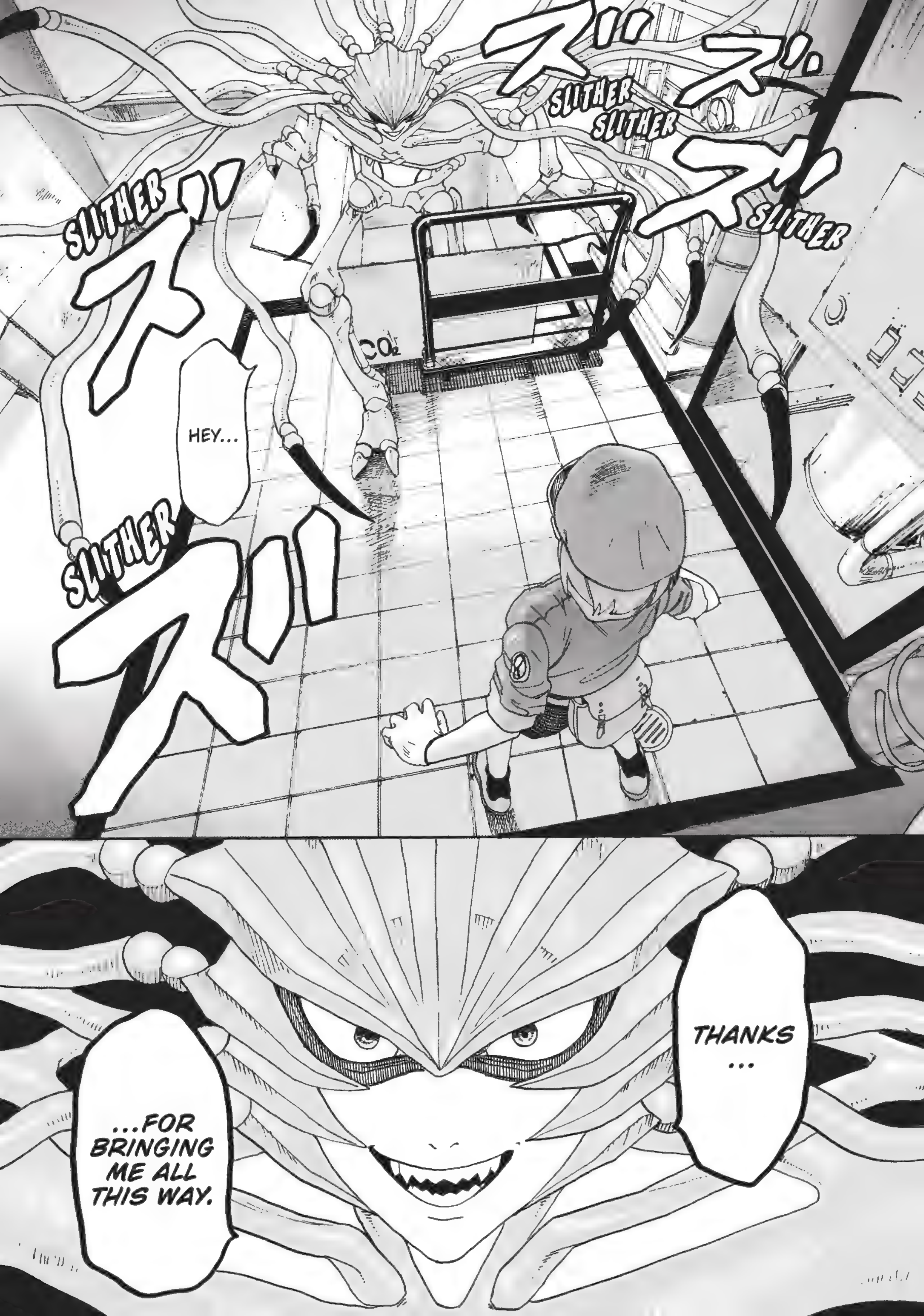

WHITE BLOOD CELL
1146
NOW... WHAT TO DO?
IF I CAN'T USE MY RECEPTOR, THEN...
わい CHATTER
わい CHATTER
HUH?
SILENCE
WHAT COULD THIS MEAN...?
ガラ WHEEL
ガラ WHEEL
ガラ WHEEL
ガラ WHEEL
UH-HUH.
SO I HAVE TO GO THROUGH THE CAPILLARIES... AND GET TO AN ALVEOLUS.
HERE IT IS! THE CAPILLARIES.
WHEEL ガラ
WHEEL ガラ...
CAPILLARY 095
DEAR RED BLOOD CELLS:
THE CAPILLARY IS NARROW, SO ENTER ONE AT A A TIME. BE COURTEOUS TO OTHERS, ONE AT A TIME!
OKAY, "BE COURTEOUS TO OTHERS, ONE AT A TIME," IT SAYS.
CO₂

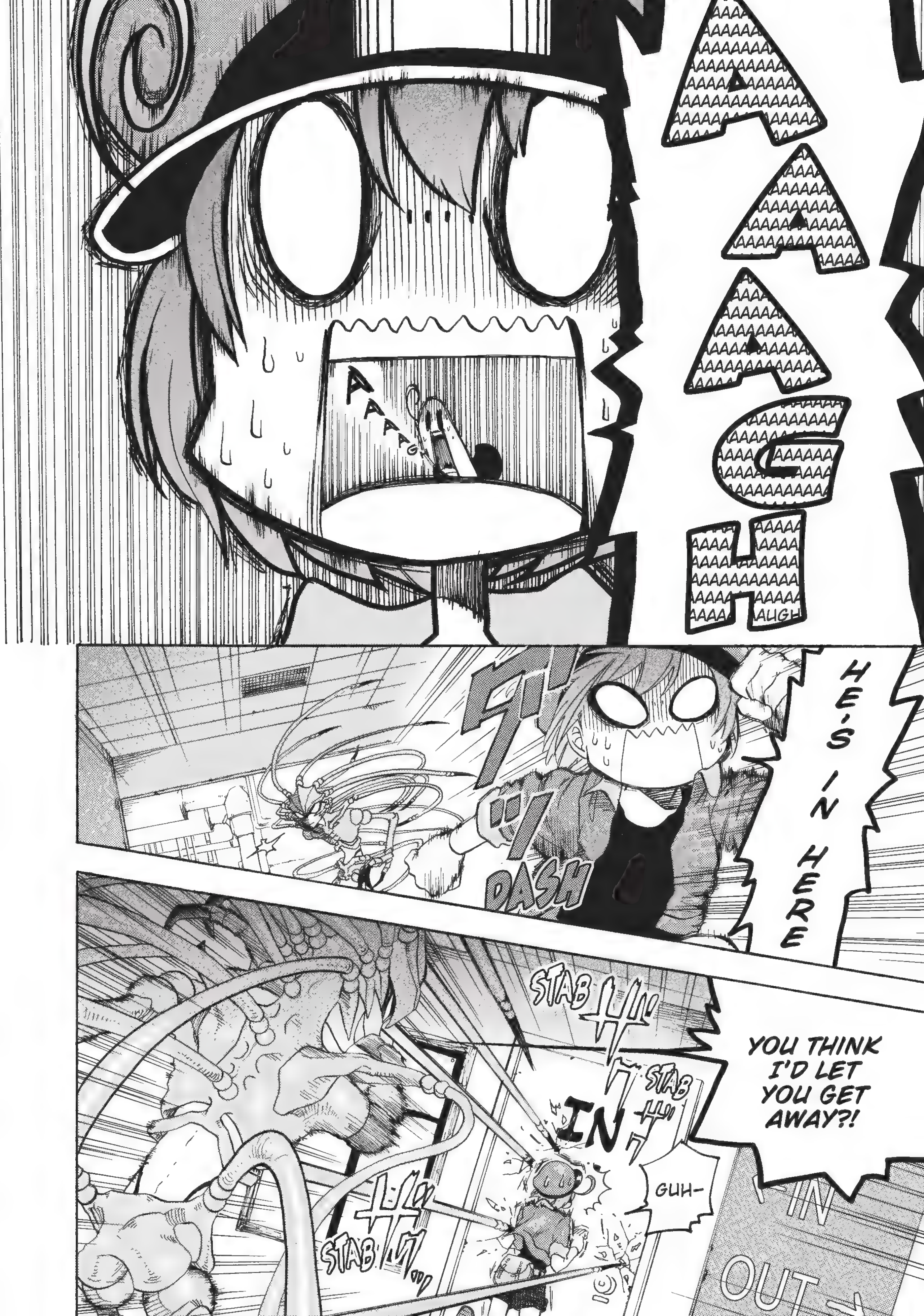
Capillaries
Very narrow blood vessels connecting the arteries and the veins.

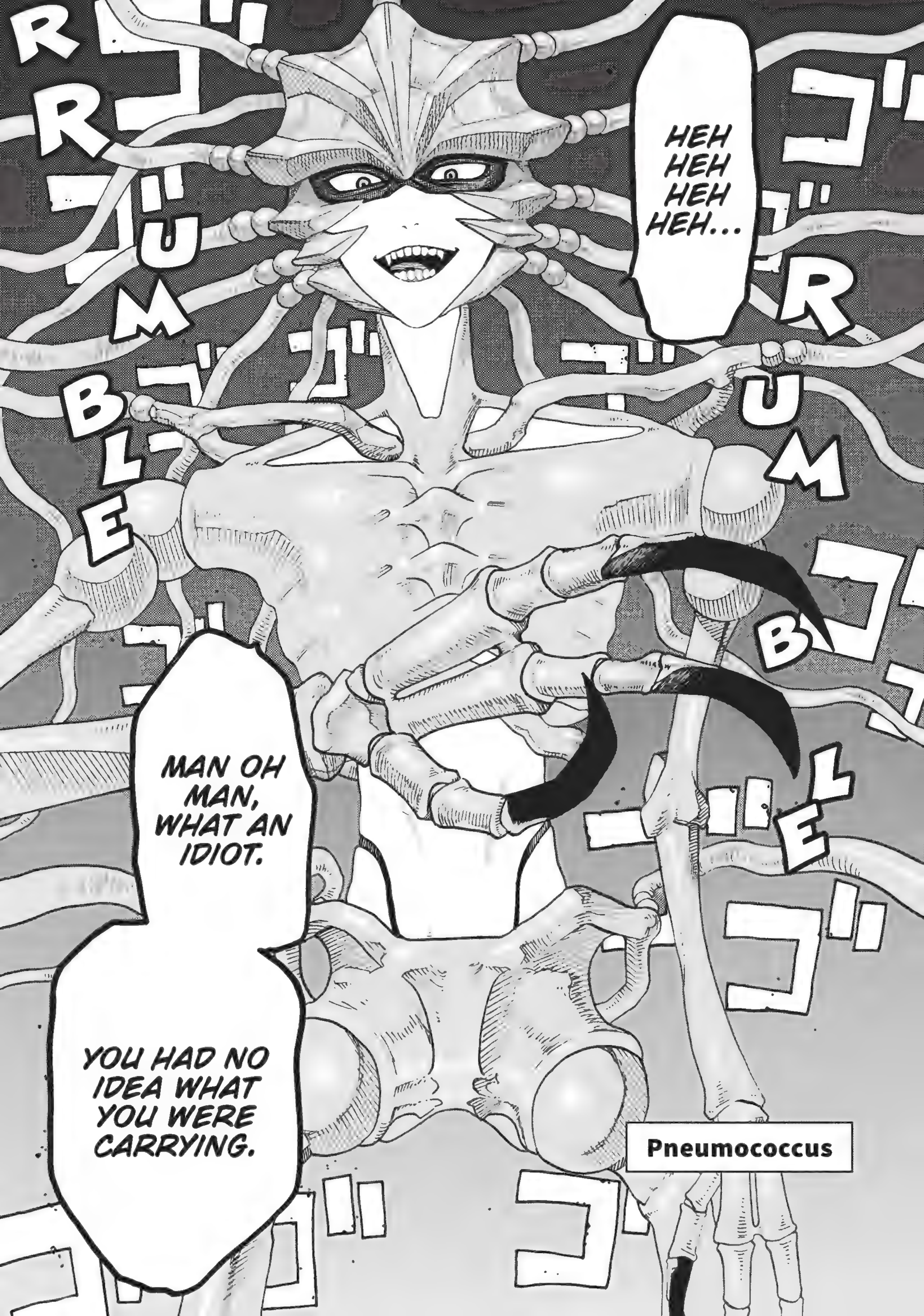

OH...
IS THIS AN ALVEOLUS?
ガチャ
KCHAK
<-IN
OUT->
THAT PNEUMOCOCCUS... I WONDER WHERE IT WENT.
I SURE HOPE I DON'T RUN INTO IT.
GATUNK
ガコッ
CO2
HUH?
ザク…
SLICE
CO2

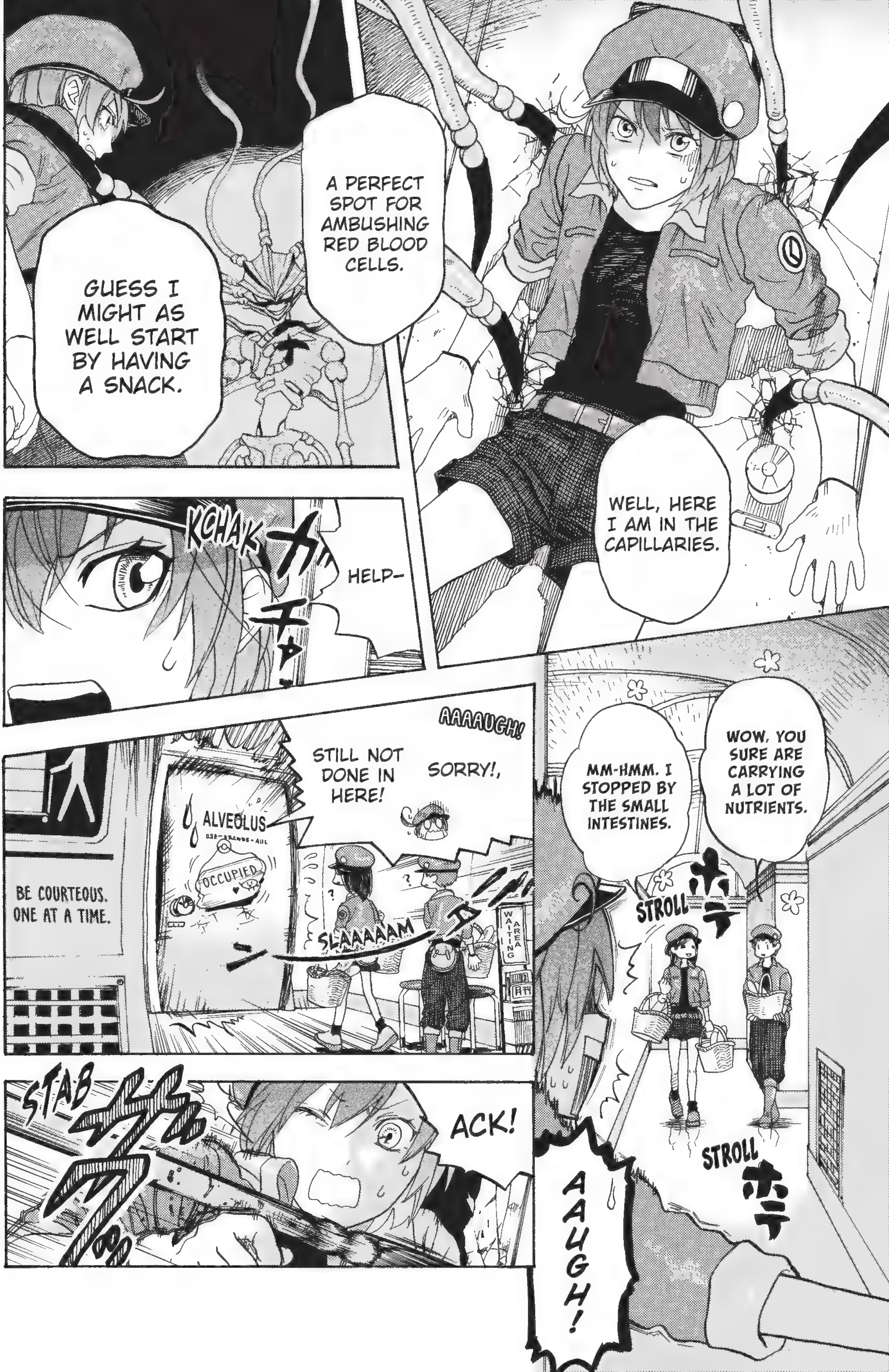
Alveolus (plural: Alveoli)
The place where air is exchanged between the air and the capillaries. There are approximately 300 million alvioli between both lungs.

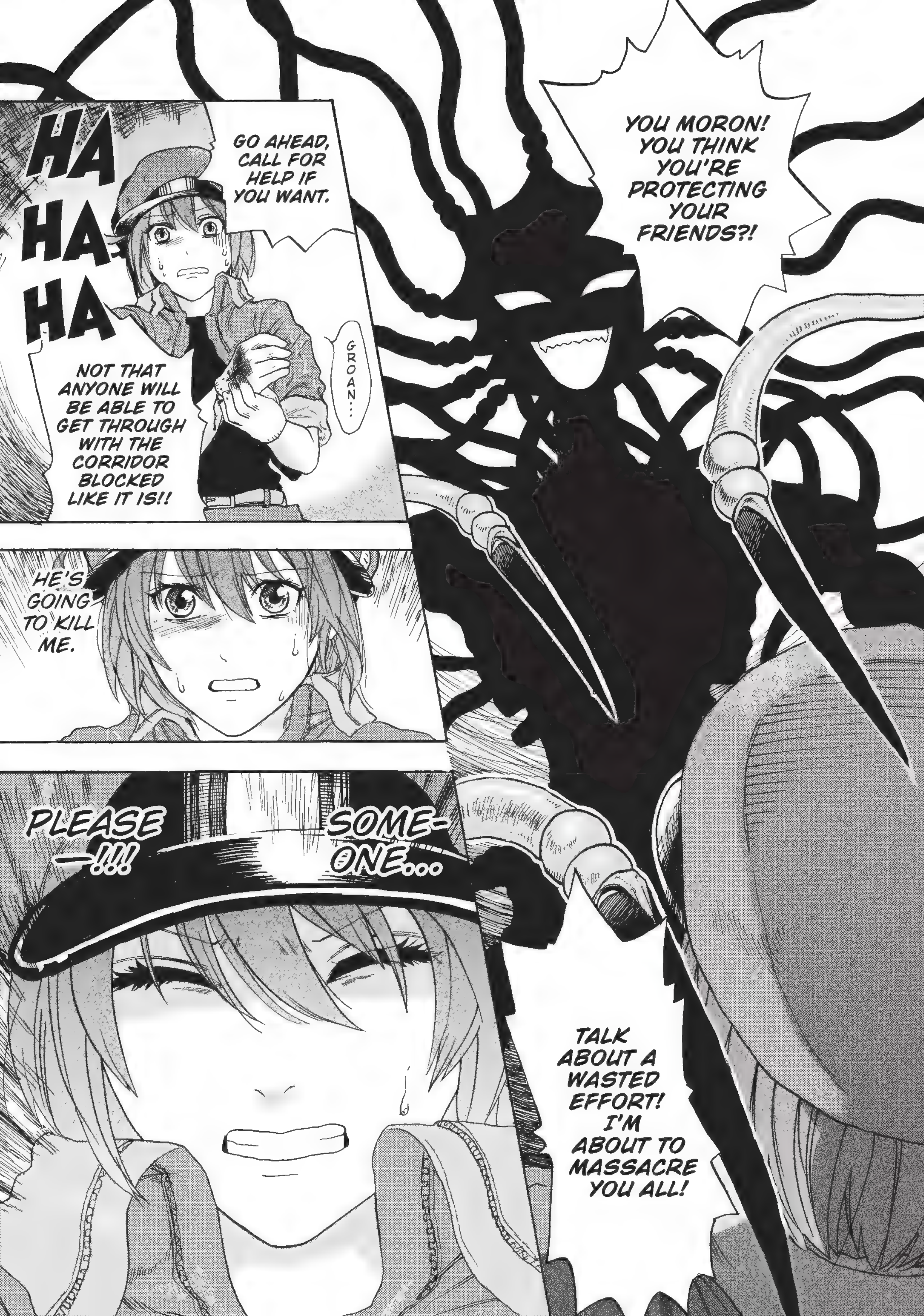

SLICE
SLICE
SLICE
SLICE
SLICE
SLICE
WHA —?
SLITHER
ズ
SLICE
SLICE
SLICE
SLITHER
ズ
SLITHER
ズ

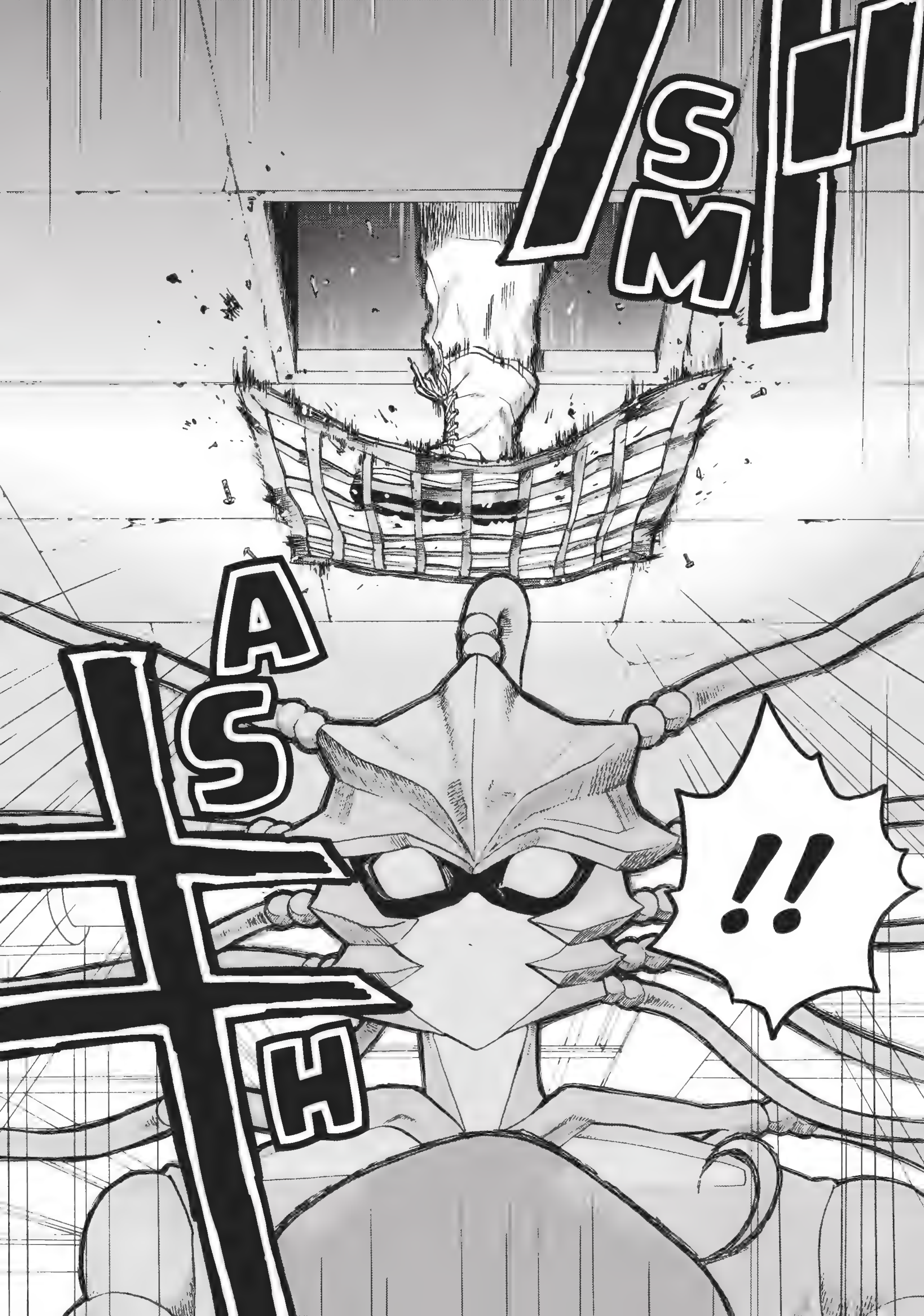

ズズ
SLITHER SLITHER
ズ
SLITHER
ズ
SLITHER
HEY...
ズ
SLITHER
THANKS...
...FOR BRINGING ME ALL THIS WAY.

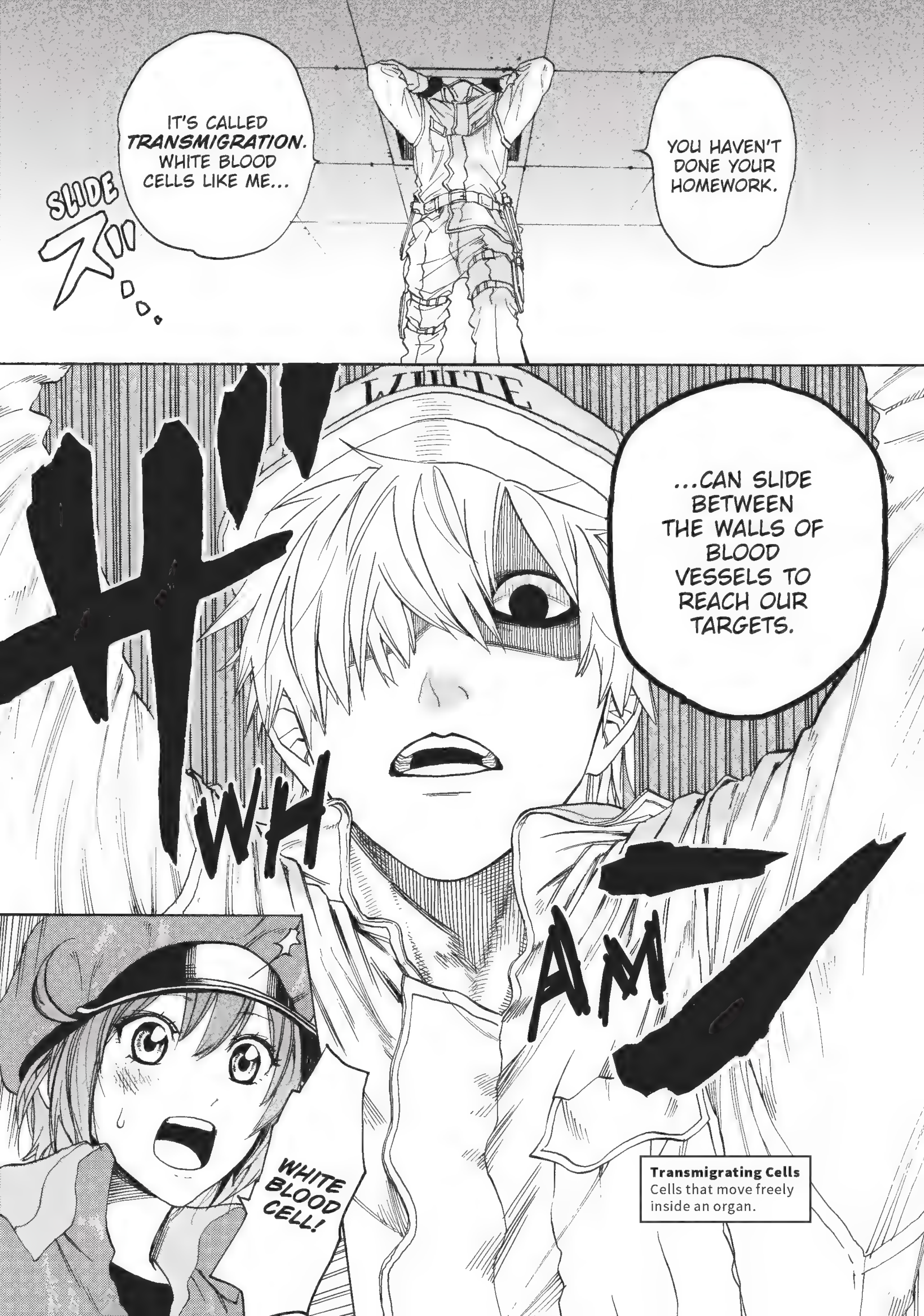

AAAAGH
...
AAAAAGH
HE'S IN HERE
DASH
YOU THINK I'D LET YOU GET AWAY?!
STAB
IN
STAB
GUH-
STAB
IN
OUT


HEH HEH HEH HEH...
RUMBLE
RRUMBLE
ゴゴゴ
MAN OH MAN, WHAT AN IDIOT.
YOU HAD NO IDEA WHAT YOU WERE CARRYING.
Pneumococcus

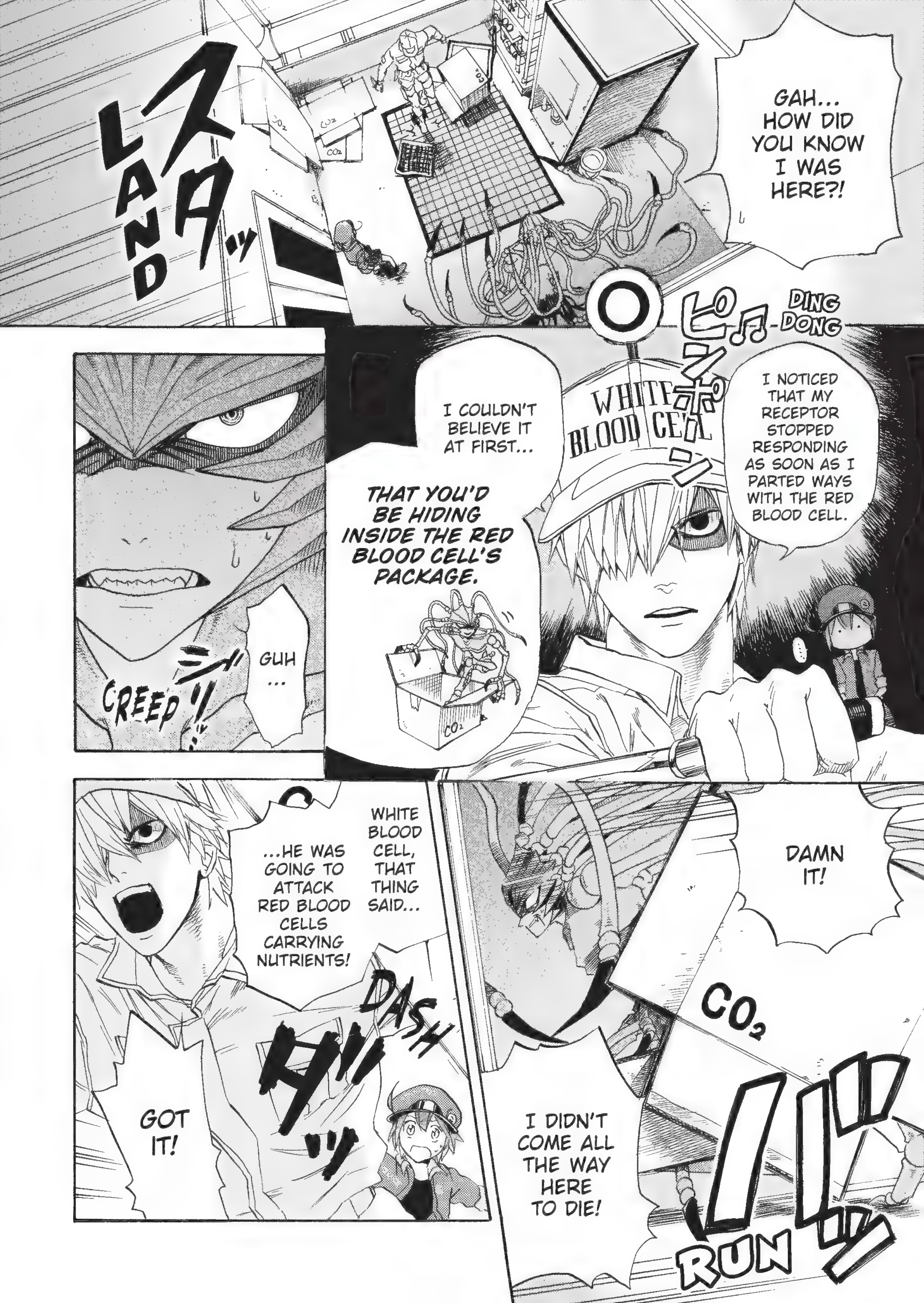

WELL, HERE I AM IN THE CAPILLARIES.
A PERFECT SPOT FOR AMBUSHING RED BLOOD CELLS.
GUESS I MIGHT AS WELL START BY HAVING A SNACK.
KCHAK
HELP-
WOW, YOU SURE ARE CARRYING A LOT OF NUTRIENTS.
MM-HMM. I STOPPED BY THE SMALL INTESTINES.
STROLL
STROLL
AAAAUGH!
SORRY!,
STILL NOT DONE IN HERE!
ALVEOLUS
OCCUPIED
BE COURTEOUS. ONE AT A TIME.
WAITING AREA
SLAAAAAM
AAUGH!
ACK!
STAB

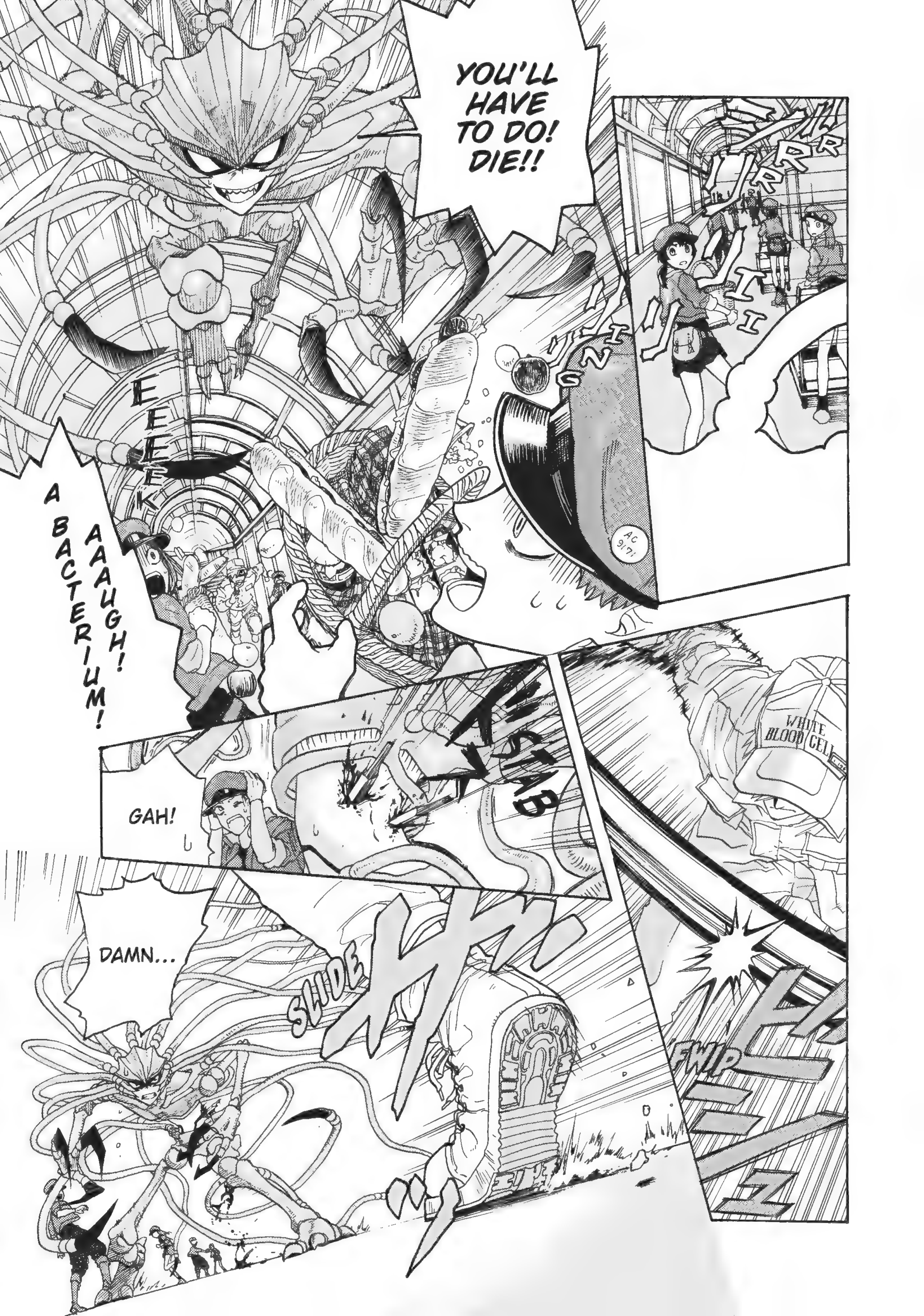

YOU MORON! YOU THINK YOU'RE PROTECTING YOUR FRIENDS?!
HA HA HA HA
GO AHEAD, CALL FOR HELP IF YOU WANT.
GROAN...
NOT THAT ANYONE WILL BE ABLE TO GET THROUGH WITH THE CORRIDOR BLOCKED LIKE IT IS!!
HE'S GOING TO KILL ME.
SOME-ONE...
PLEASE—!!!
TALK ABOUT A WASTED EFFORT! I'M ABOUT TO MASSACRE YOU ALL!

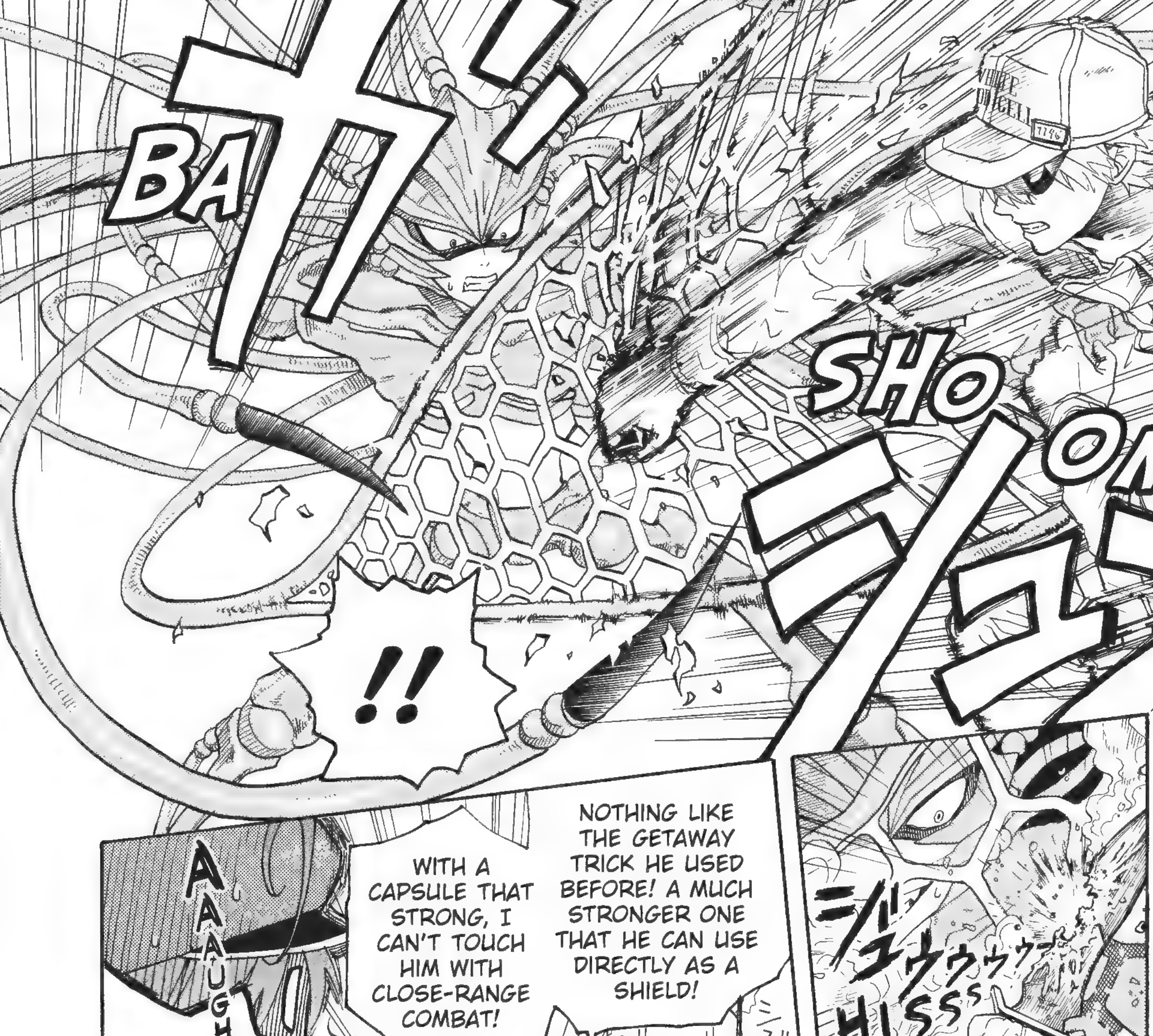

SM
ASH
!!


YOU HAVEN'T DONE YOUR HOMEWORK.
IT'S CALLED *TRANSMIGRATION*. WHITE BLOOD CELLS LIKE ME...
SLIDE
WHITE
...CAN SLIDE BETWEEN THE WALLS OF BLOOD VESSELS TO REACH OUR TARGETS.
WHAM
WHITE BLOOD CELL!

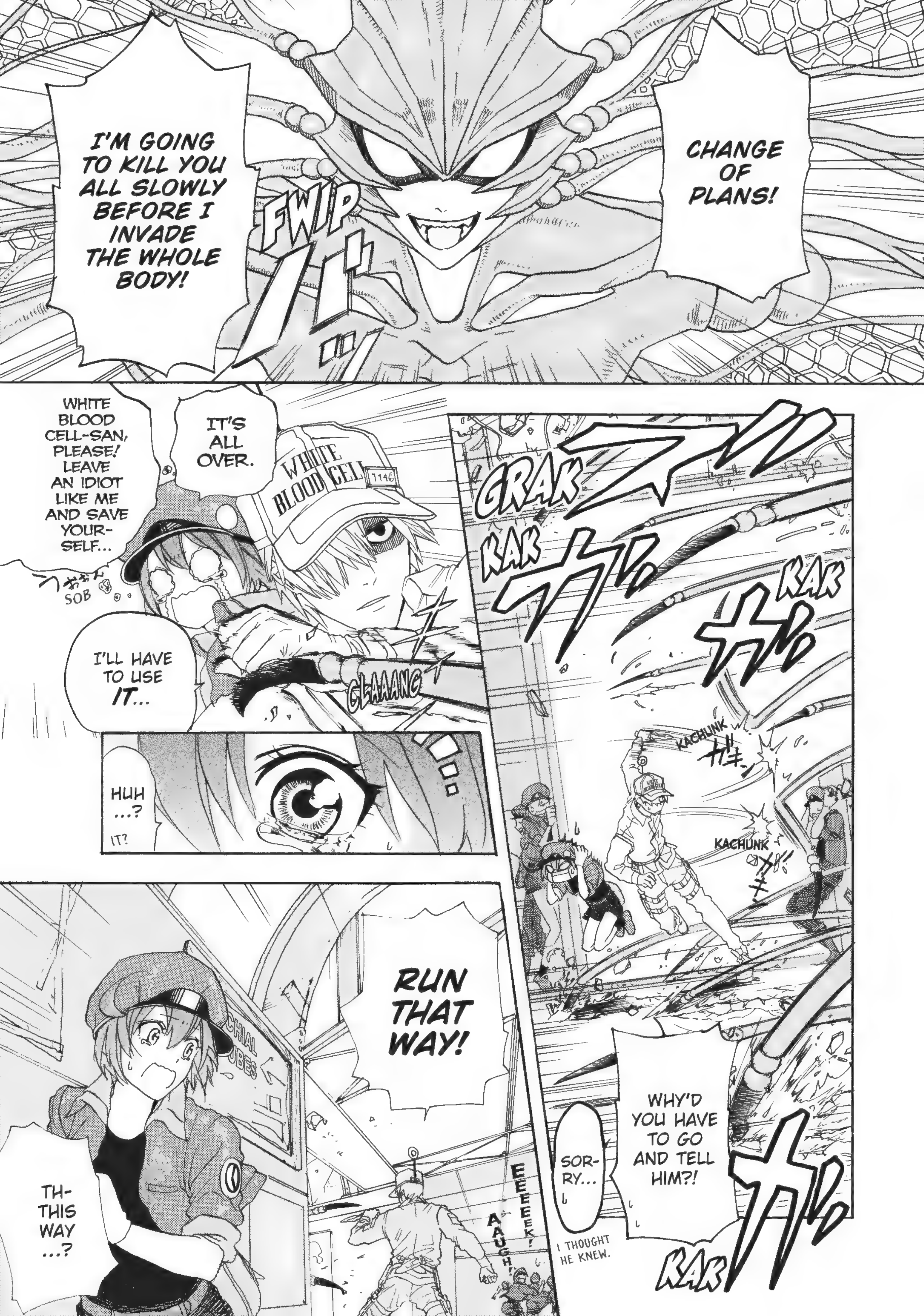
Transmigrating Cells
Cells that move freely inside an organ.

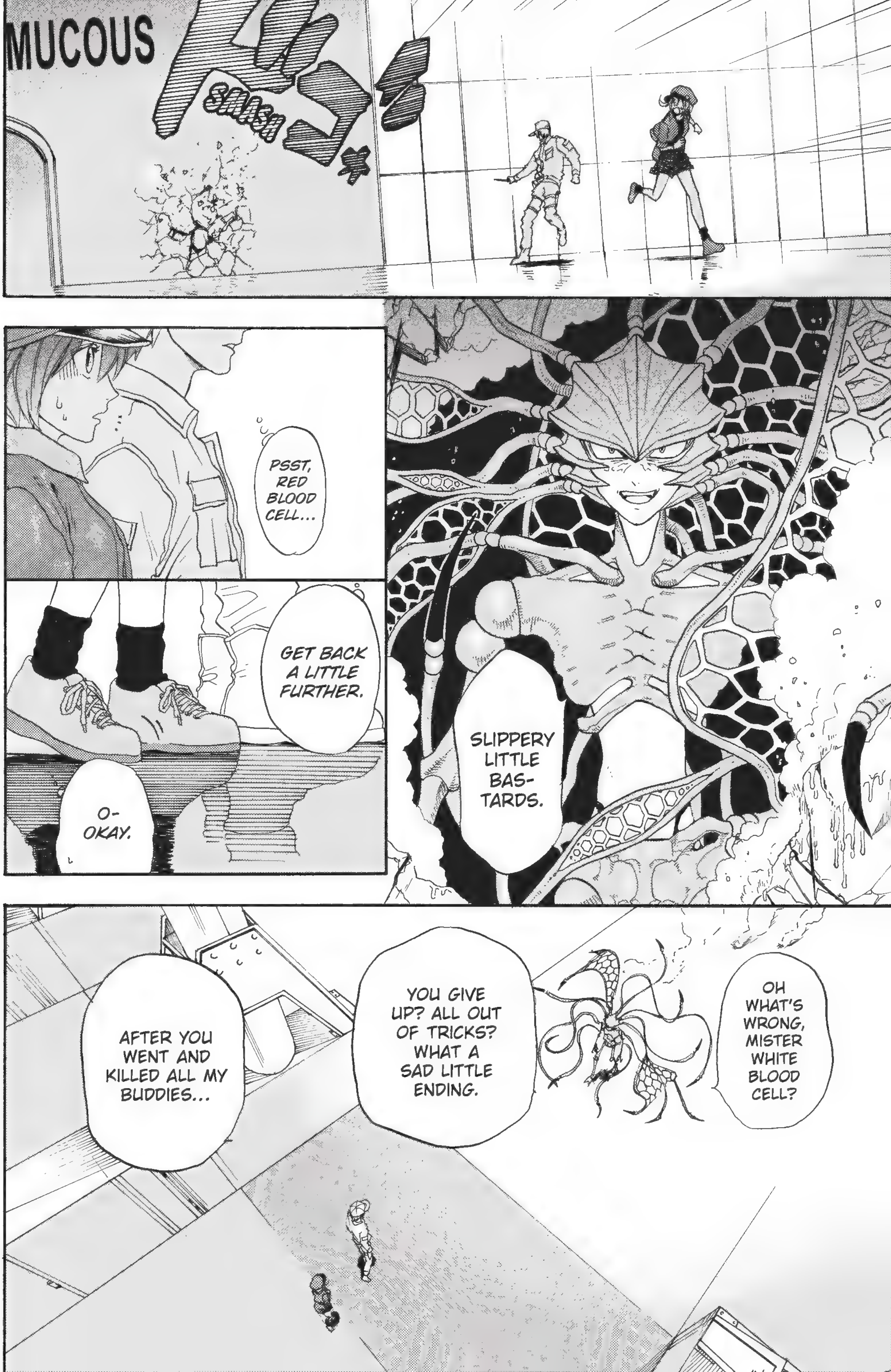

GAH… HOW DID YOU KNOW I WAS HERE?!
スタッ
LAND
ピンポーン
DING DONG
I NOTICED THAT MY RECEPTOR STOPPED RESPONDING AS SOON AS I PARTED WAYS WITH THE RED BLOOD CELL.
WHITE BLOOD CELL
I COULDN'T BELIEVE IT AT FIRST…
THAT YOU'D BE HIDING INSIDE THE RED BLOOD CELL'S PACKAGE.
CO2
GUH …
CREEP
DAMN IT!
CO2
I DIDN'T COME ALL THE WAY HERE TO DIE!
RUN
WHITE BLOOD CELL, THAT THING SAID…
…HE WAS GOING TO ATTACK RED BLOOD CELLS CARRYING NUTRIENTS!
ダッ
DASH
GOT IT!

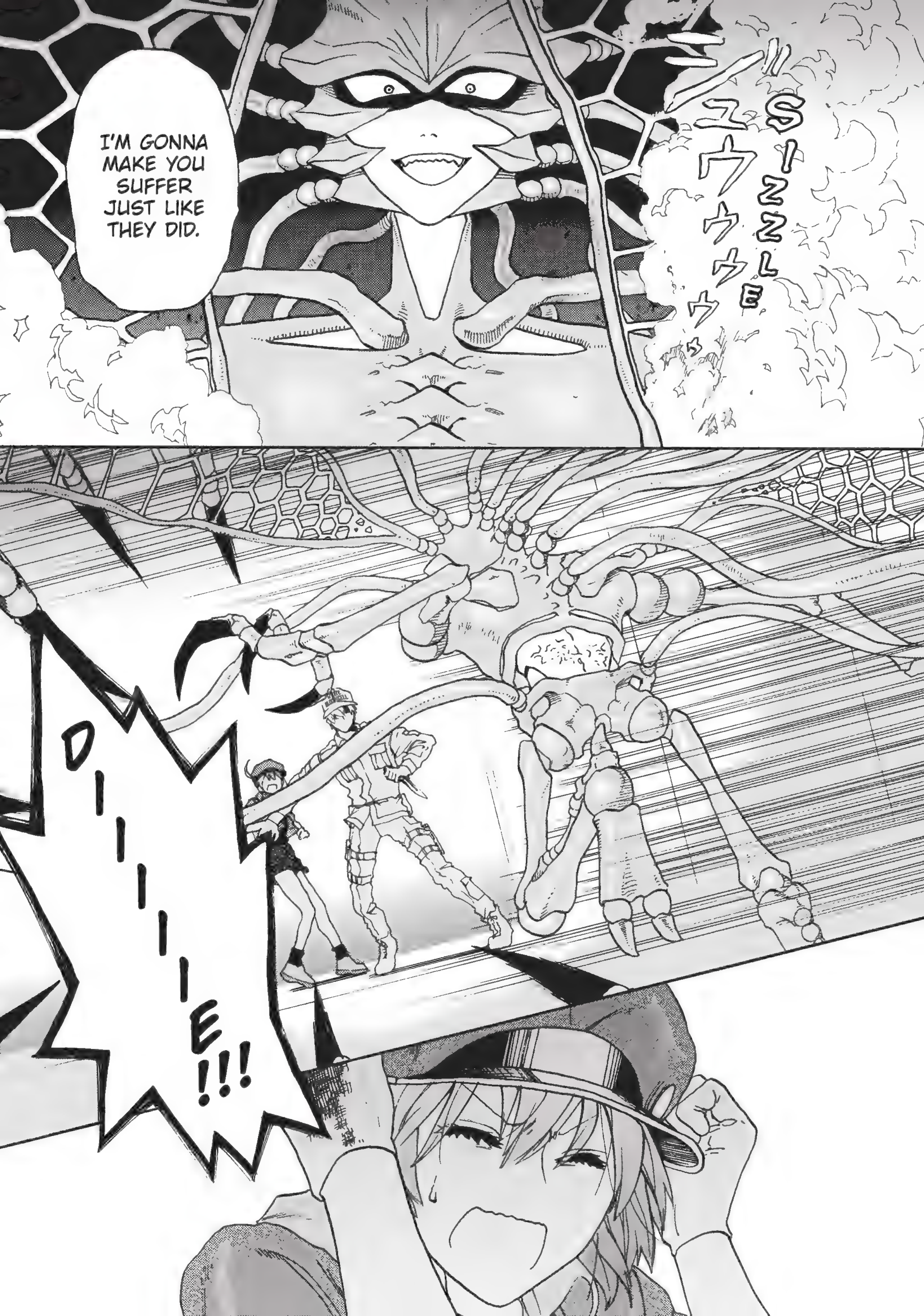

YOU'LL HAVE TO DO! DIE!!
URRR
GNII
AC 9171
EEEEK
AAAAUGH! A BACTERIUM!
WHITE BLOOD CELL
STAB
GAH!
FWIP
SLIDE
DAMN...

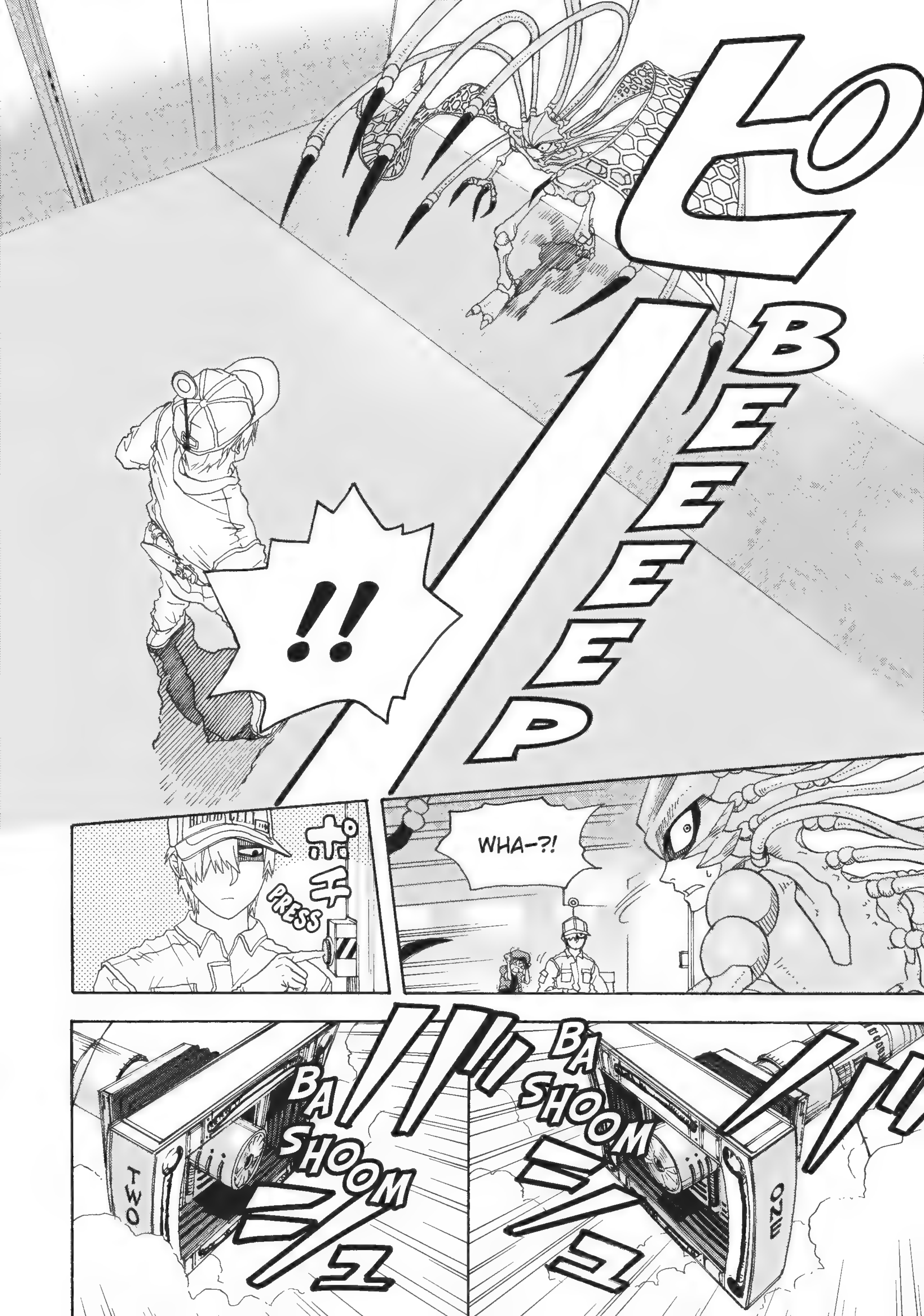

BA
SHO OM
!!
HISSS
NOTHING LIKE THE GETAWAY TRICK HE USED BEFORE! A MUCH STRONGER ONE THAT HE CAN USE DIRECTLY AS A SHIELD!
WITH A CAPSULE THAT STRONG, I CAN'T TOUCH HIM WITH CLOSE-RANGE COMBAT!
HISSS
GET BACK!
OH REALLY?
AAAUGH
WHITE BLOOD CELL! DON'T JUST TELL HIM THAT!
GUH. A CAPSULE...
EEEK
A CAPSULE?! YOU MEAN WHAT HE USED BEFORE—?!
AUGH AUGH
GRIN
I SEE. THAT'S GOOD TO KNOW.

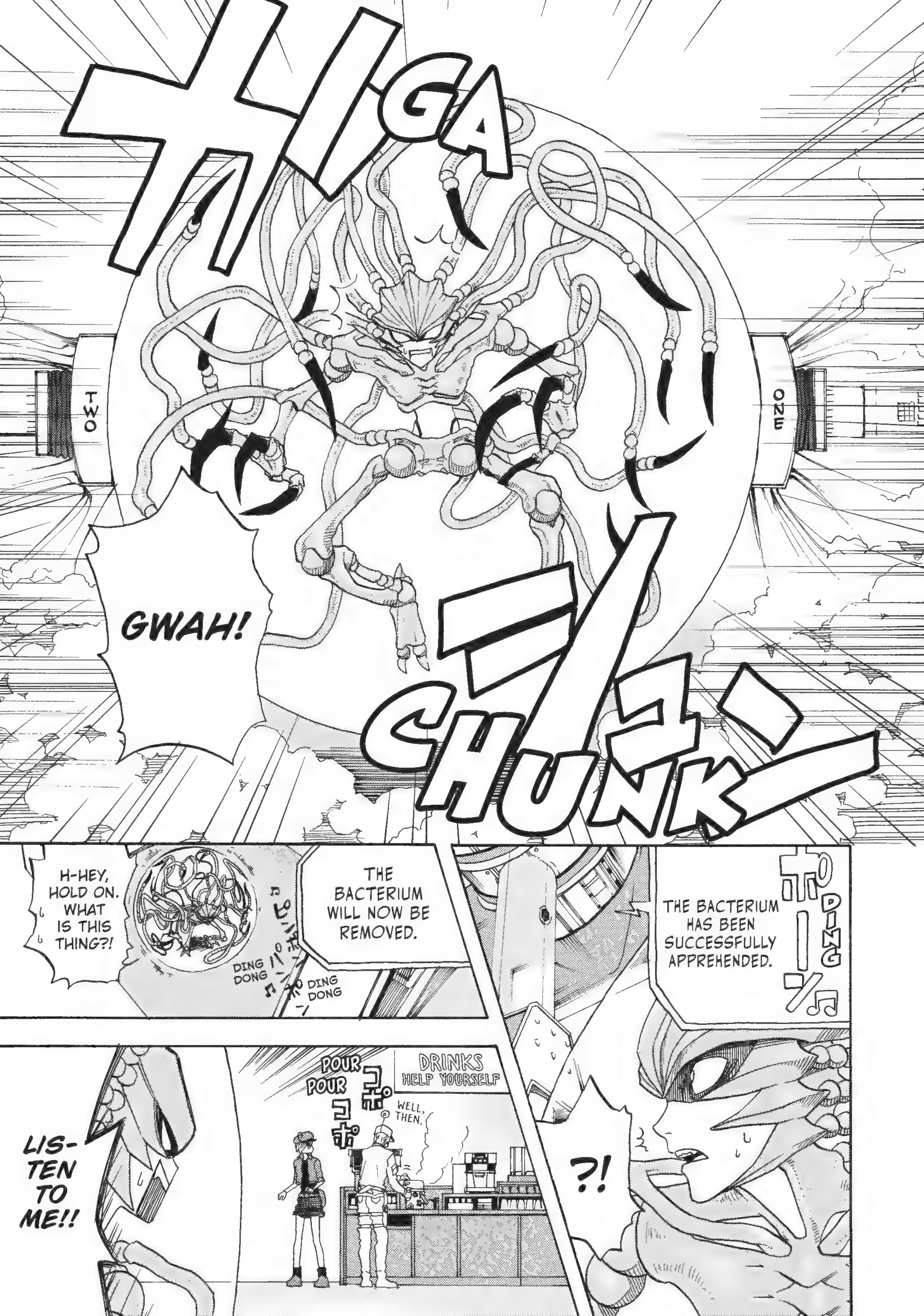
Encapsulated Bacteria
Bacteria that use capsules to protect themselves. Pneumococcus is one example.

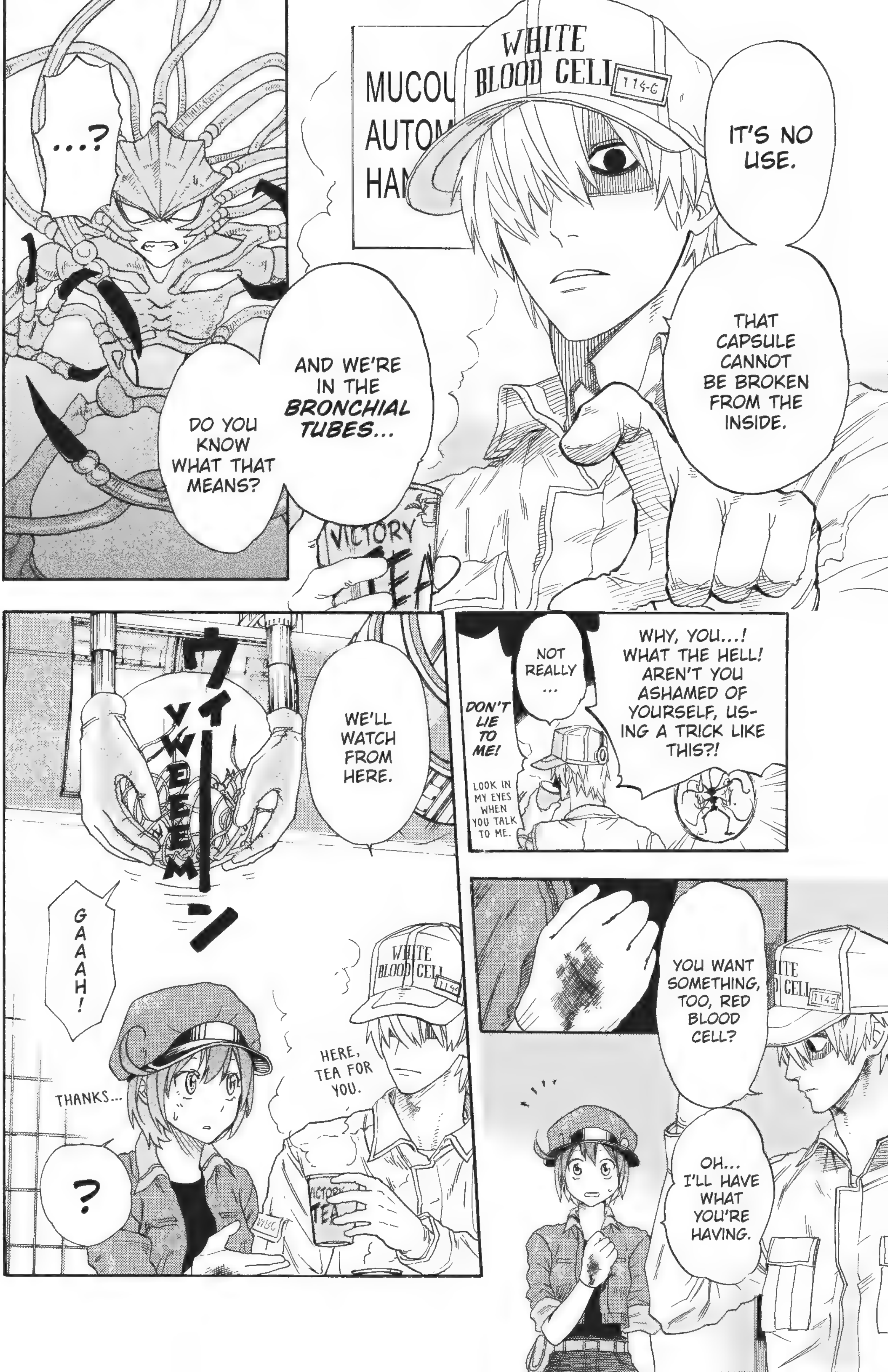

CHANGE OF PLANS!
I'M GOING TO KILL YOU ALL SLOWLY BEFORE I INVADE THE WHOLE BODY!
FWIP
IT'S ALL OVER.
WHITE BLOOD CELL-SAN, PLEASE! LEAVE AN IDIOT LIKE ME AND SAVE YOURSELF...
WHITE BLOOD CELL
1146
SOB
I'LL HAVE TO USE IT...
CLAAAANG
HUH ...?
IT?
GRAK
KAK
KAK
KACHUNK
KACHUNK
RUN THAT WAY!
TH-THIS WAY ...?
CHIAL
BES
EEEEEEK!
AAUGH!
WHY'D YOU HAVE TO GO AND TELL HIM?!
SORRY...
I THOUGHT HE KNEW.
KAK

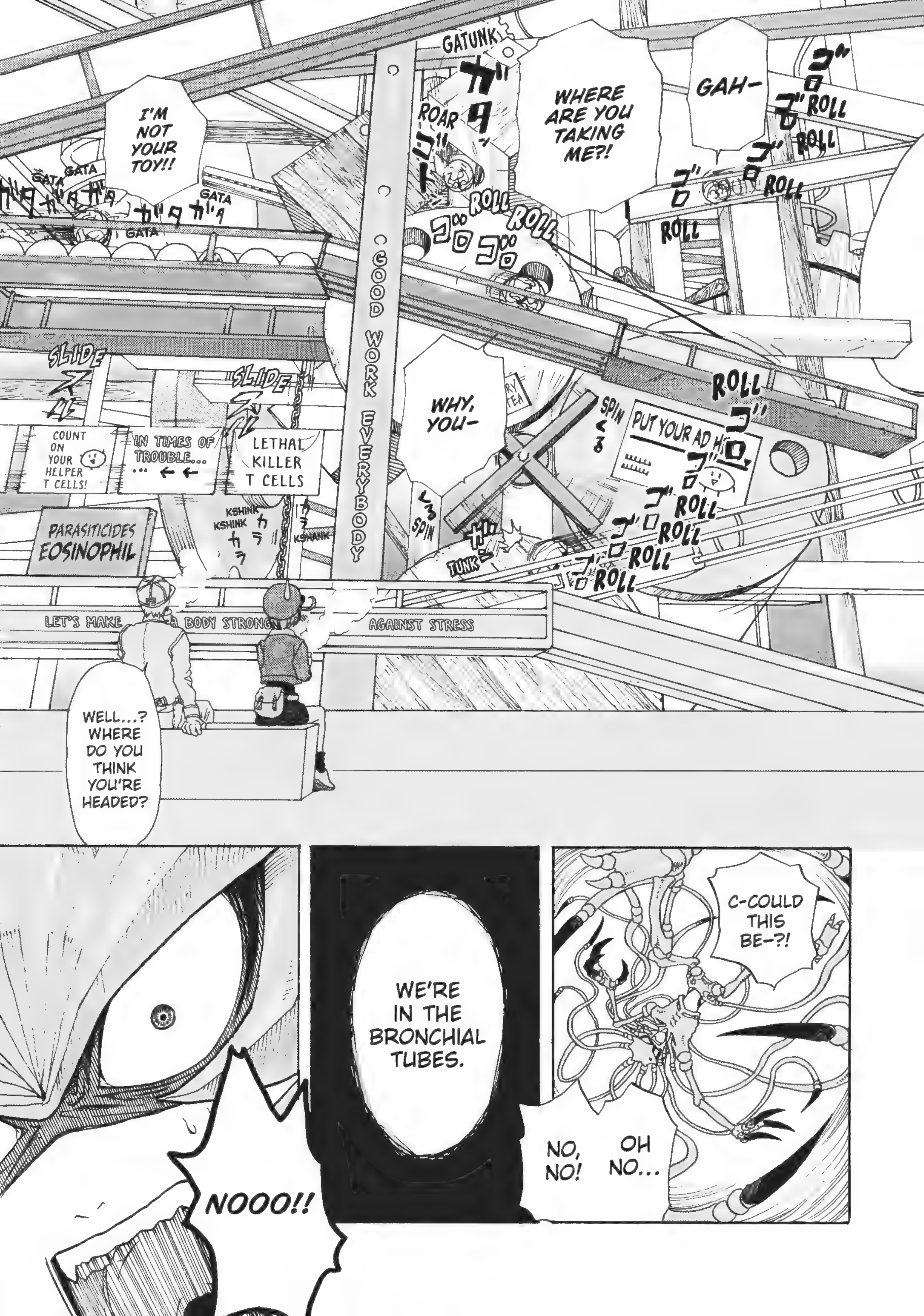

MUCOUS
SMASH
SLIPPERY LITTLE BASTARDS.
PSST, RED BLOOD CELL...
GET BACK A LITTLE FURTHER.
O- OKAY.
OH WHAT'S WRONG, MISTER WHITE BLOOD CELL?
YOU GIVE UP? ALL OUT OF TRICKS? WHAT A SAD LITTLE ENDING.
AFTER YOU WENT AND KILLED ALL MY BUDDIES...

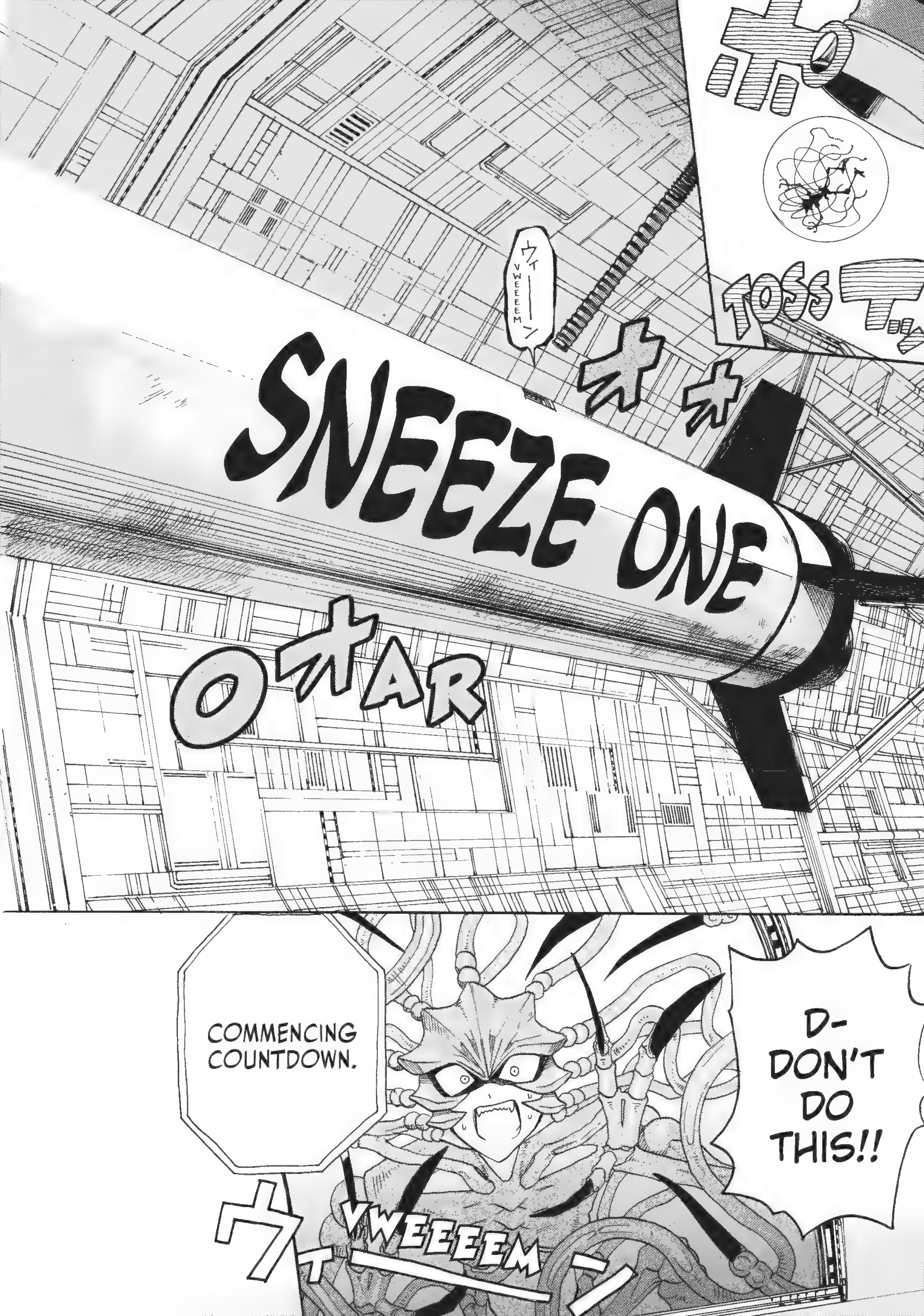

SIZZLE
ジュウウウウゥ
I'M GONNA MAKE YOU SUFFER JUST LIKE THEY DID.
DIIIIE!!!

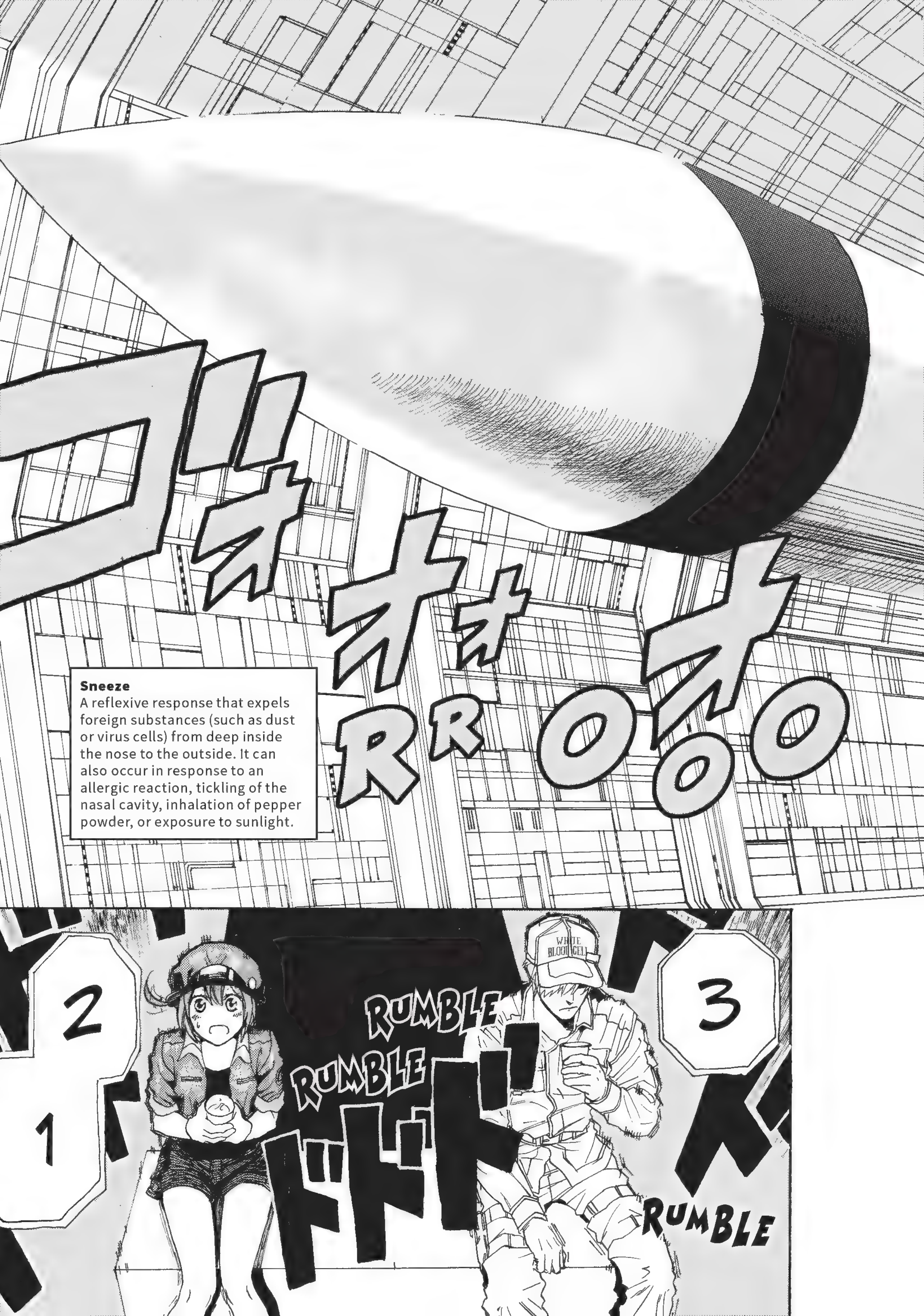

ピ
BEEEEEEP
!!
WHA-?!
ポチ
PRESS
BA SHOOM
シュ
BA SHOOM
シュ
TWO
TWO


GA
TWO
ONE
GWAH!
CHUNK
THE BACTERIUM HAS BEEN SUCCESSFULLY APPREHENDED.
DING
THE BACTERIUM WILL NOW BE REMOVED.
DING DONG
DING DONG
H-HEY, HOLD ON. WHAT IS THIS THING?!
?!
DRINKS HELP YOURSELF
POUR POUR
WELL, THEN.
LIS-TEN TO ME!!

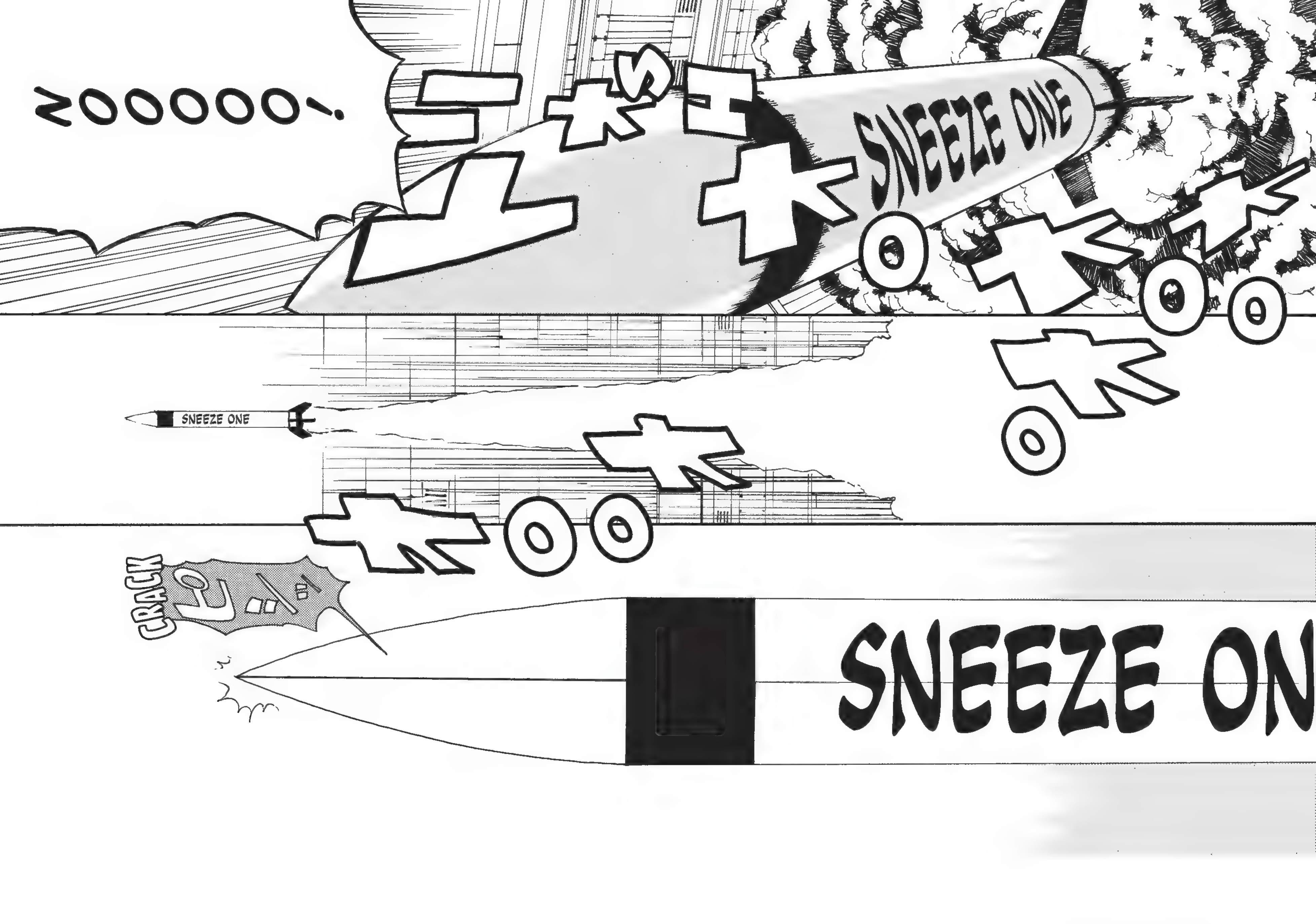

WHITE BLOOD CELL 1146
MUCOU AUTOM HAN
IT'S NO USE.
THAT CAPSULE CANNOT BE BROKEN FROM THE INSIDE.
AND WE'RE IN THE BRONCHIAL TUBES...
DO YOU KNOW WHAT THAT MEANS?
VICTORY TEA
...?
WHY, YOU...! WHAT THE HELL! AREN'T YOU ASHAMED OF YOURSELF, USING A TRICK LIKE THIS?!
NOT REALLY...
DON'T LIE TO ME!
LOOK IN MY EYES WHEN YOU TALK TO ME.
WE'LL WATCH FROM HERE.
ウィーーン
YWEEEM
GAAAAH!
YOU WANT SOMETHING, TOO, RED BLOOD CELL?
OH... I'LL HAVE WHAT YOU'RE HAVING.
HERE, TEA FOR YOU.
THANKS...
?
VICTORY TEA

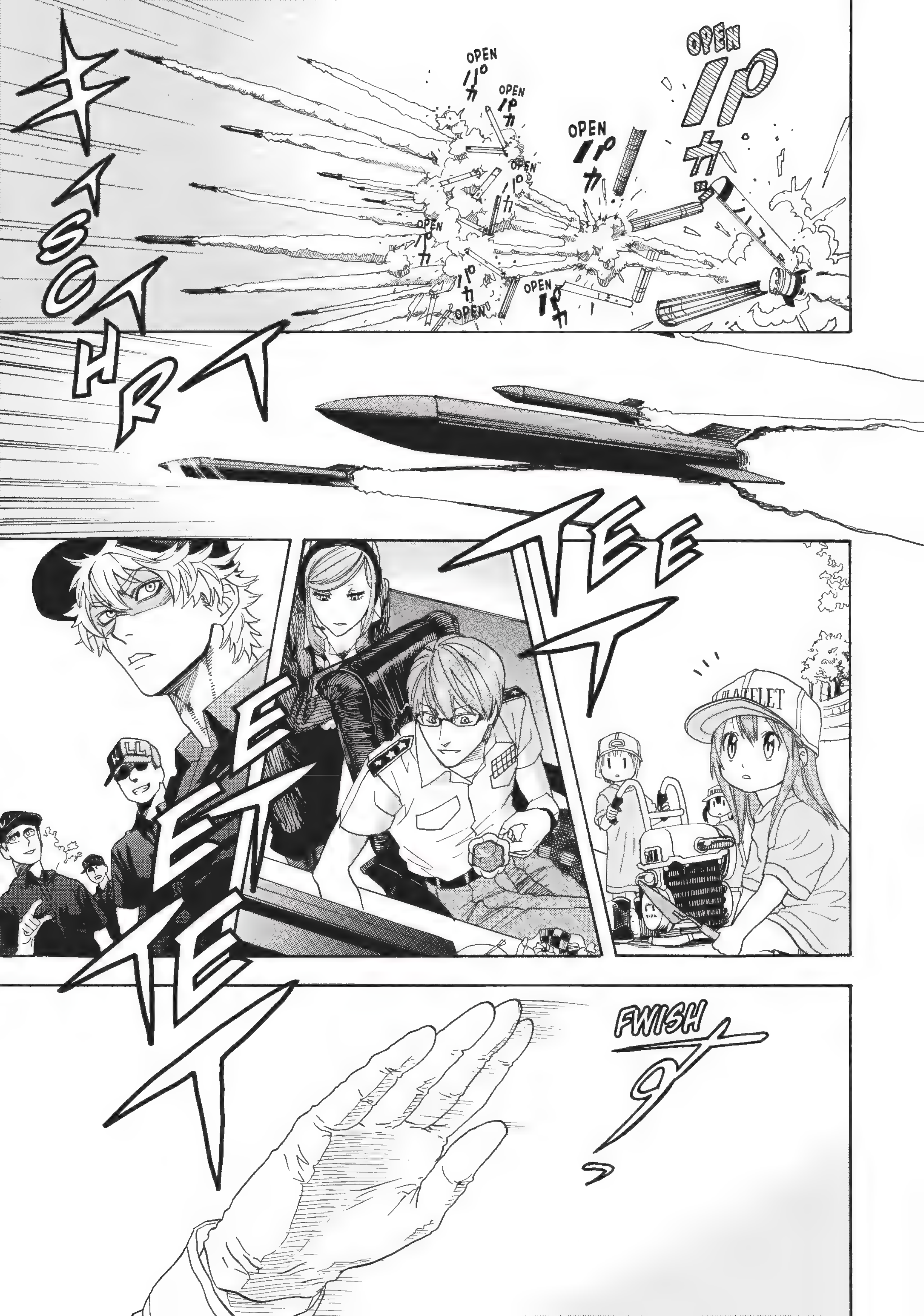

GAH-
ROLL
ROLL
ROLL
ROLL
WHERE ARE YOU TAKING ME?!
GATUNK
ROAR
ROLL
ROLL
I'M NOT YOUR TOY!!
GATA
GATA
GATA
GATA
GOOD WORK EVERYBODY
WHY, YOU-
SPIN
SPIN
TUNK
PUT YOUR AD H
ROLL
ROLL
ROLL
ROLL
ROLL
SLIDE
SLIDE
LETHAL KILLER T CELLS
IN TIMES OF TROUBLE... ← ←
COUNT ON YOUR HELPER T CELLS!
PARASITICIDES EOSINOPHIL
KSHINK
KSHINK
KSHANK
LET'S MAKE A BODY STRONG AGAINST STRESS
WELL...? WHERE DO YOU THINK YOU'RE HEADED?
C-COULD THIS BE-?!
OH NO...
NO, NO!
WE'RE IN THE BRONCHIAL TUBES.
NOOO!!


ポト
TOSS トッ
ウィーン VWEEEEM
SNEEZE ONE
オオ
OオAR
D-DON'T DO THIS!!
COMMENCING COUNTDOWN.
ウィーーン VWEEEEM

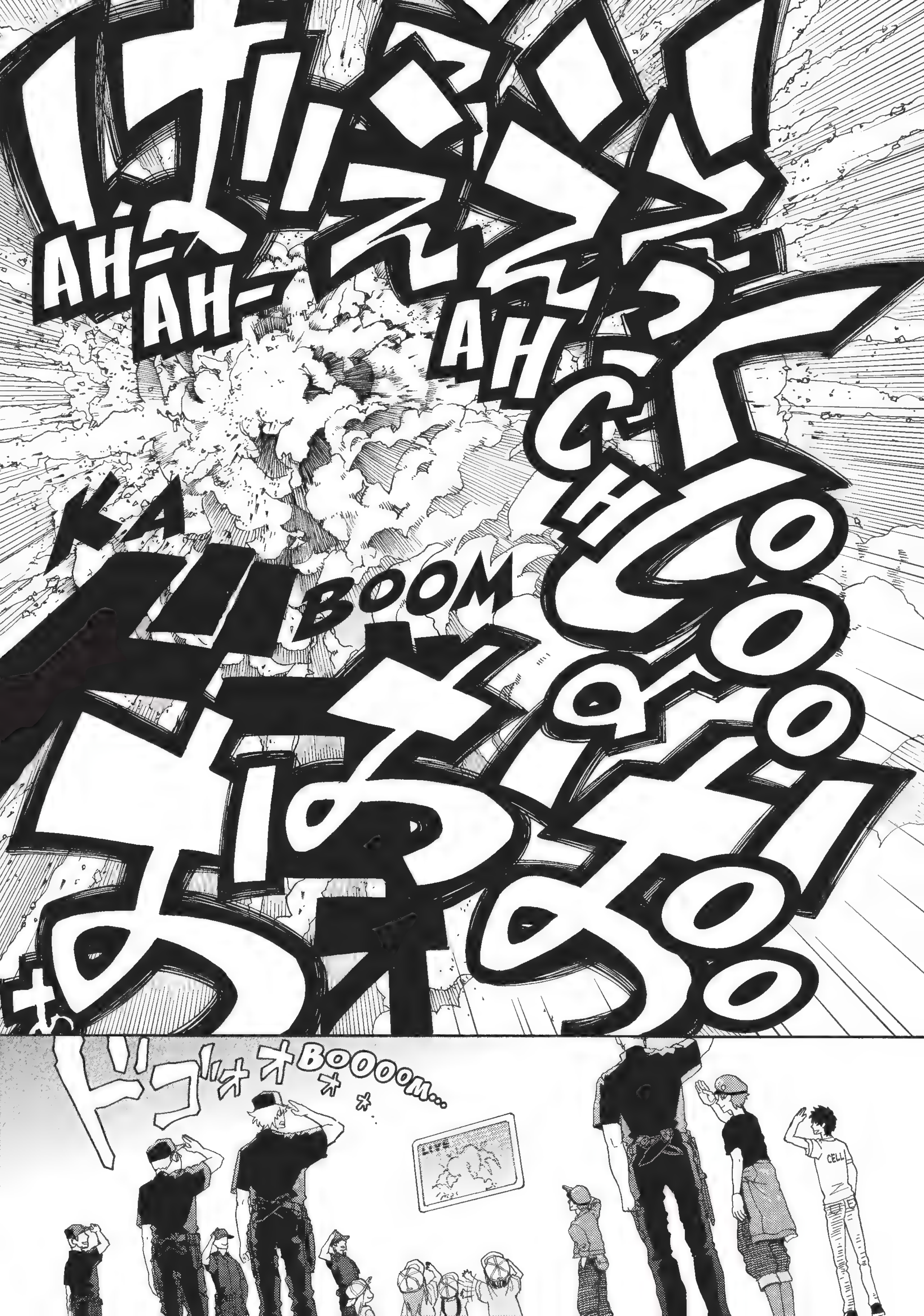

ゴオオォオ
RRROOO
3
WHITE BLOOD CELL
RUMBLE
ドドドド
RUMBLE
RUMBLE
2
1

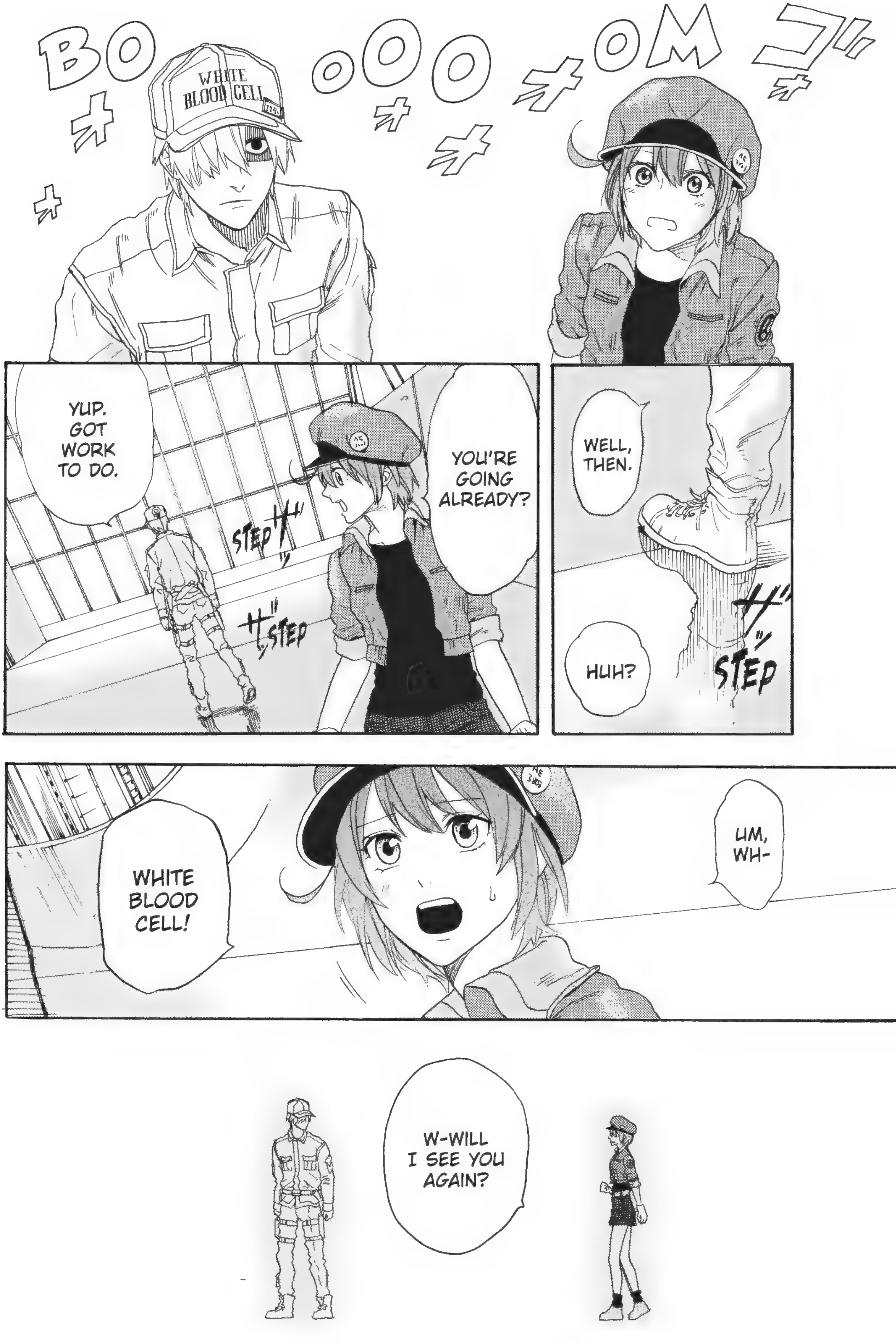
Sneeze
A reflexive response that expels foreign substances (such as dust or virus cells) from deep inside the nose to the outside. It can also occur in response to an allergic reaction, tickling of the nasal cavity, inhalation of pepper powder, or exposure to sunlight.

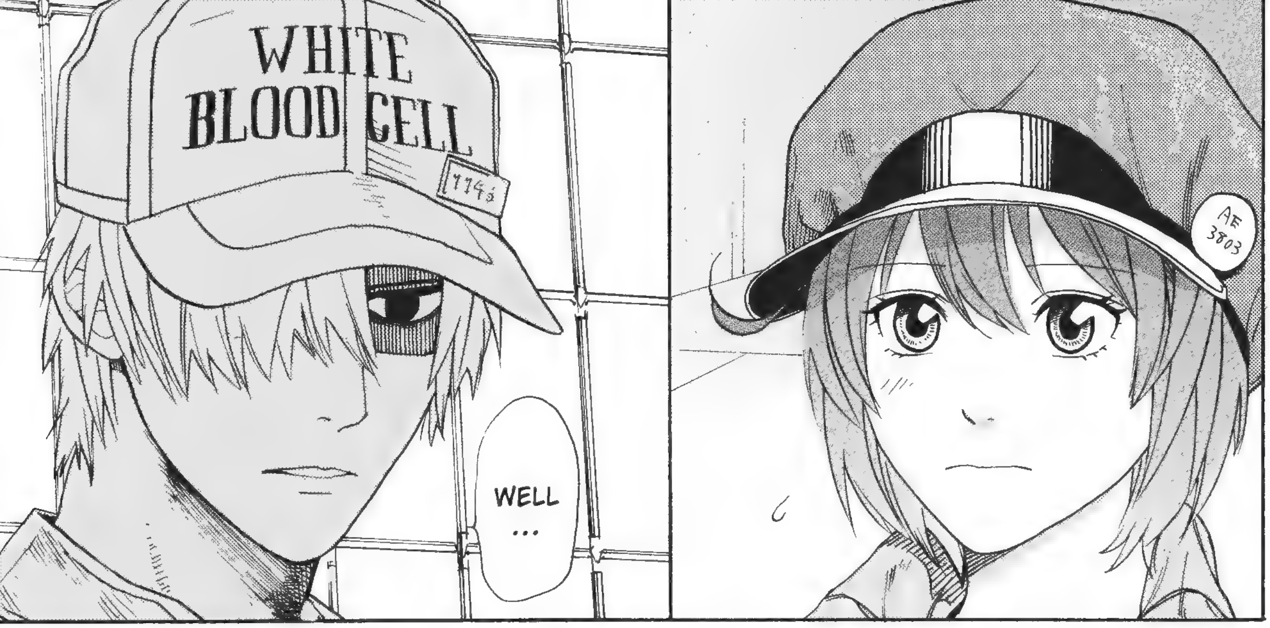

NOOOOOO!
SNEEZE ONE
SNEEZE ONE
SNEEZE ONE
CRACK
ピ


OPEN
パカ
OPEN
パカ
OPEN
パカ
OPEN
パカ
OPEN
パカ
OPEN
パカ
OPEN
パカ
OPEN
SOHR
TEEE
E ET TE
PLATELET
FWISH

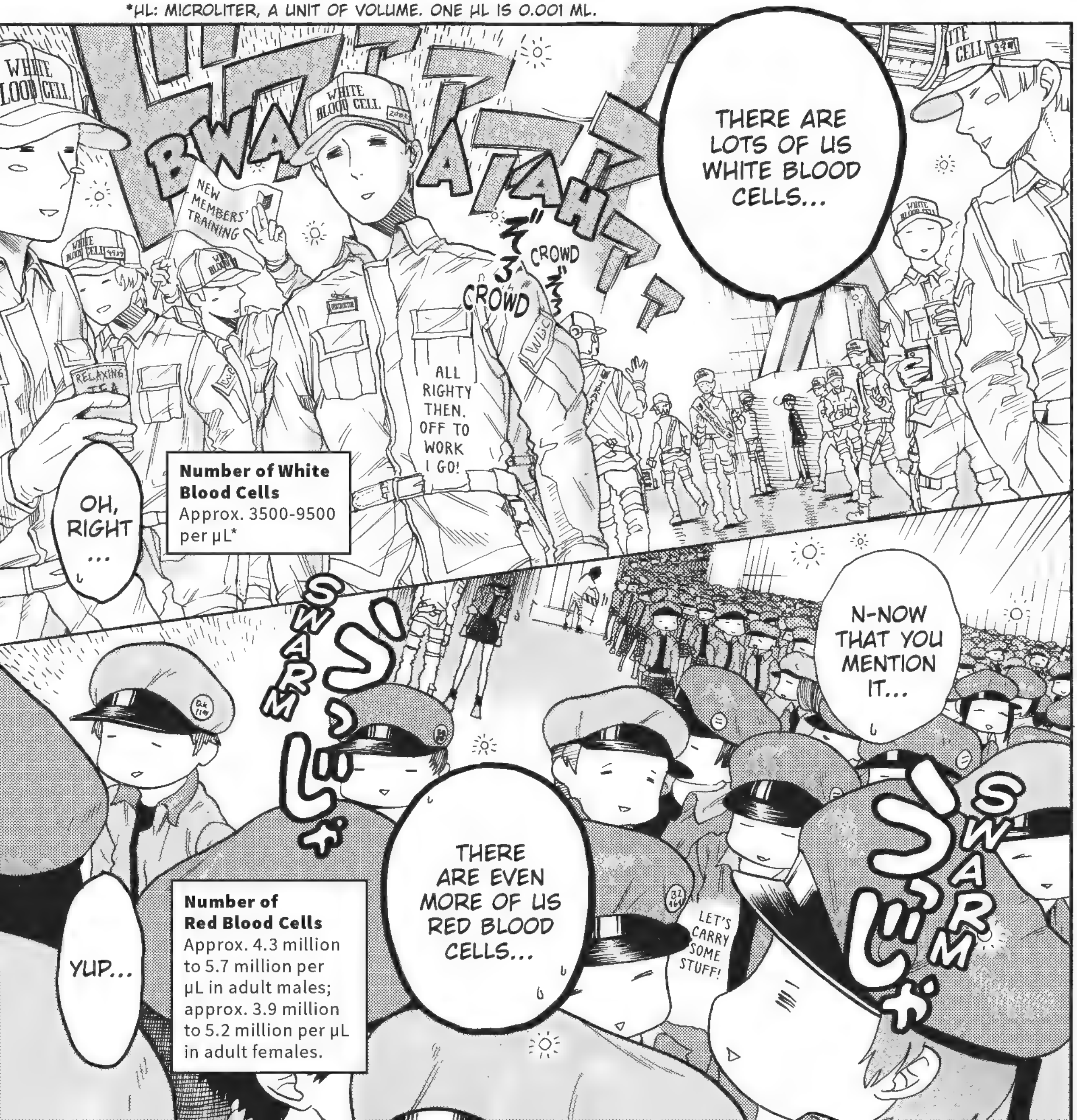
BYE-BYE, GERM.


AH-
AH-
AH-
GCH
KA
BOOM
ドゴォオォォ
BOOOOM...
LIVE
CELL


BOoOOOM
ゴオオオオオオ
WHITE BLOOD CELL
WELL, THEN.
ザッ STEP
HUH?
YOU'RE GOING ALREADY?
YUP. GOT WORK TO DO.
ザッ STEP
ザッ STEP
UM, WH-
WHITE BLOOD CELL!
W-WILL I SEE YOU AGAIN?

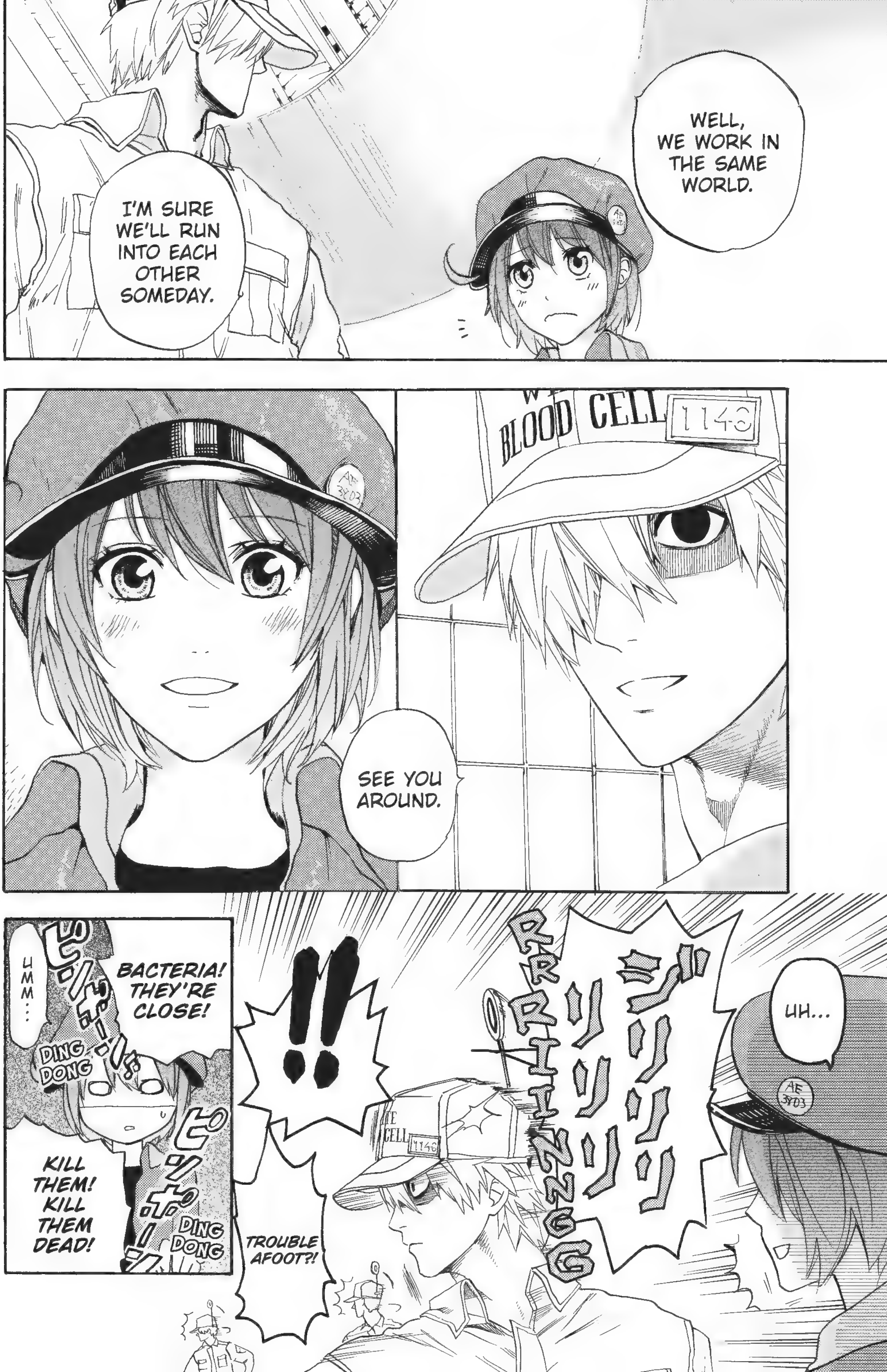

WHITE BLOOD CELL
AE 3803
WELL ...

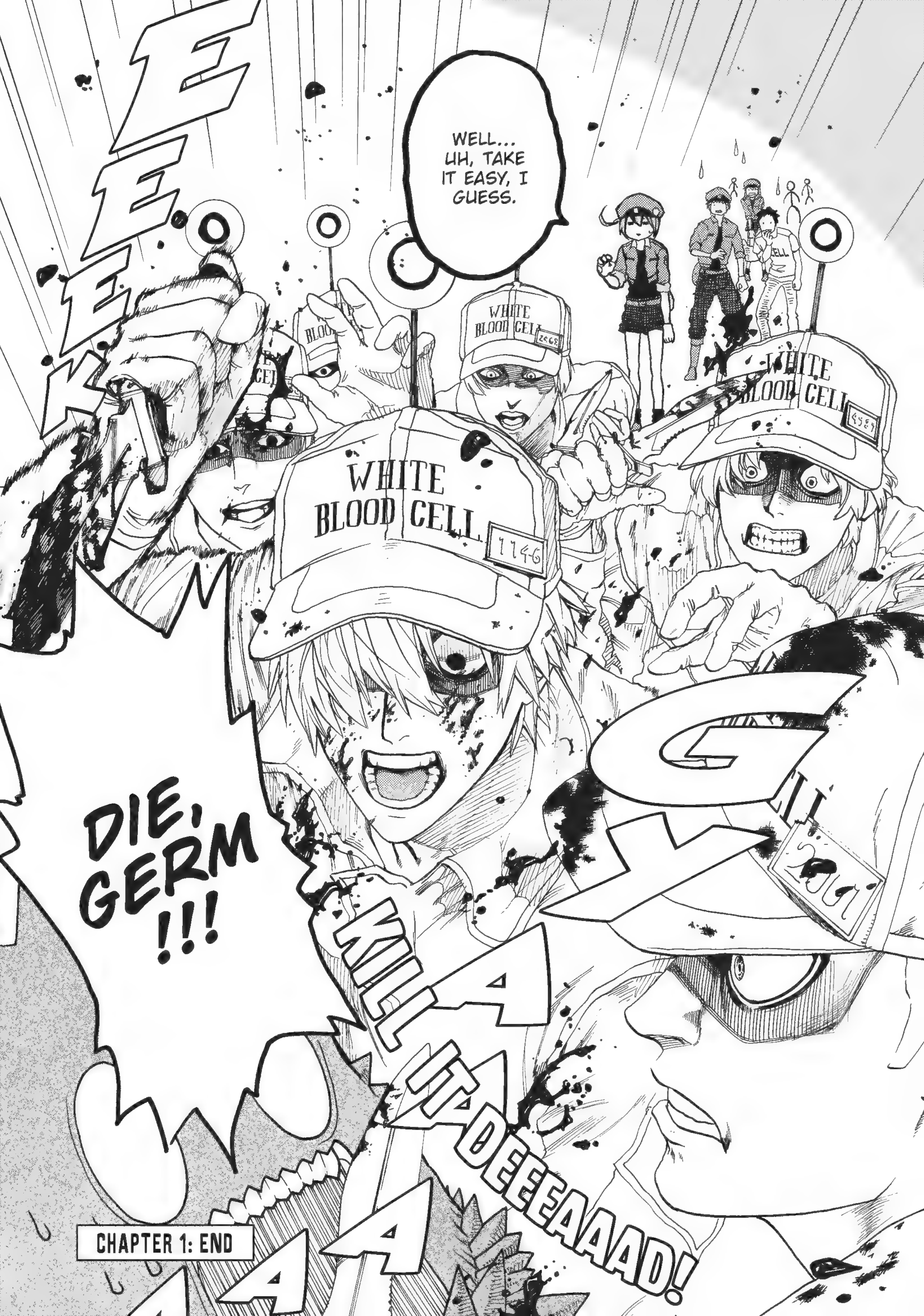
*µL: MICROLITER, A UNIT OF VOLUME. ONE µL IS 0.001 ML.


THERE ARE LOTS OF US WHITE BLOOD CELLS...
BWAAAH
CROWD
CROWD
NEW MEMBERS' TRAINING
RELAXING TEA
ALL RIGHTY THEN. OFF TO WORK I GO!
OH, RIGHT ...
N-NOW THAT YOU MENTION IT...
SWARM
SWARM
LET'S CARRY SOME STUFF!
THERE ARE EVEN MORE OF US RED BLOOD CELLS...
YUP...

Number of White Blood Cells
Approx. 3500-9500 per µL*

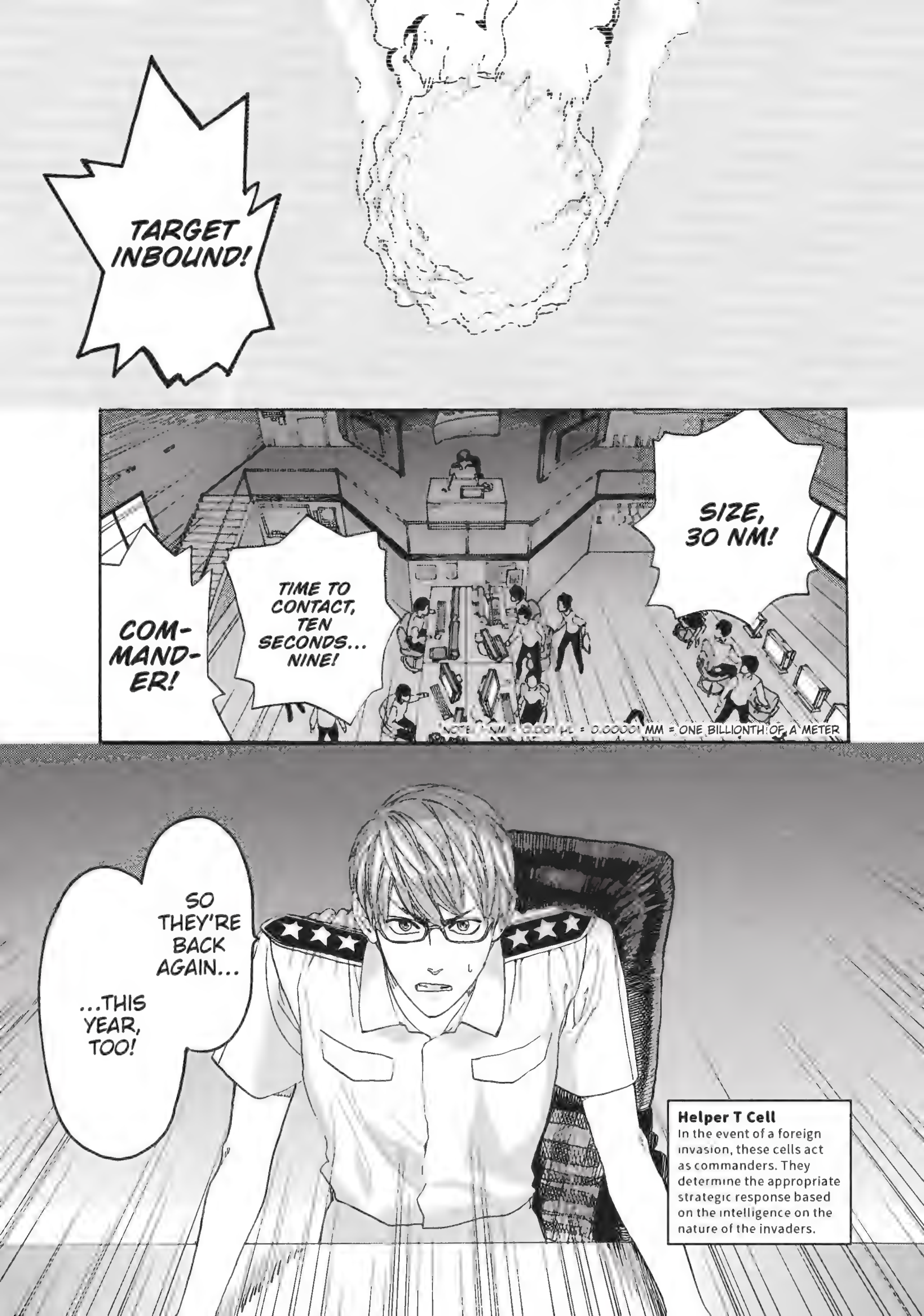
Number of Red Blood Cells
Approx. 4.3 million to 5.7 million per µL in adult males; approx. 3.9 million to 5.2 million per µL in adult females.


WELL, WE WORK IN THE SAME WORLD.
I'M SURE WE'LL RUN INTO EACH OTHER SOMEDAY.
AE 3803
BLOOD CELL
1146
SEE YOU AROUND.
UH...
AE 3803
ジリリリリ
RRRIIINNGG
CELL
1146
!!
TROUBLE AFOOT?!
ピンポーン
DING DONG
KILL THEM! KILL THEM DEAD!
BACTERIA! THEY'RE CLOSE!
ピンポーン
DING DONG
UMM...


WELL... UH, TAKE IT EASY, I GUESS.
EEEK
WHITE BLOOD CELL 4989
WHITE BLOOD CELL
WHITE BLOOD CELL 1146
GYAAAAAA
KILL IT DEEEAAAAD!
DIE, GERM!!!

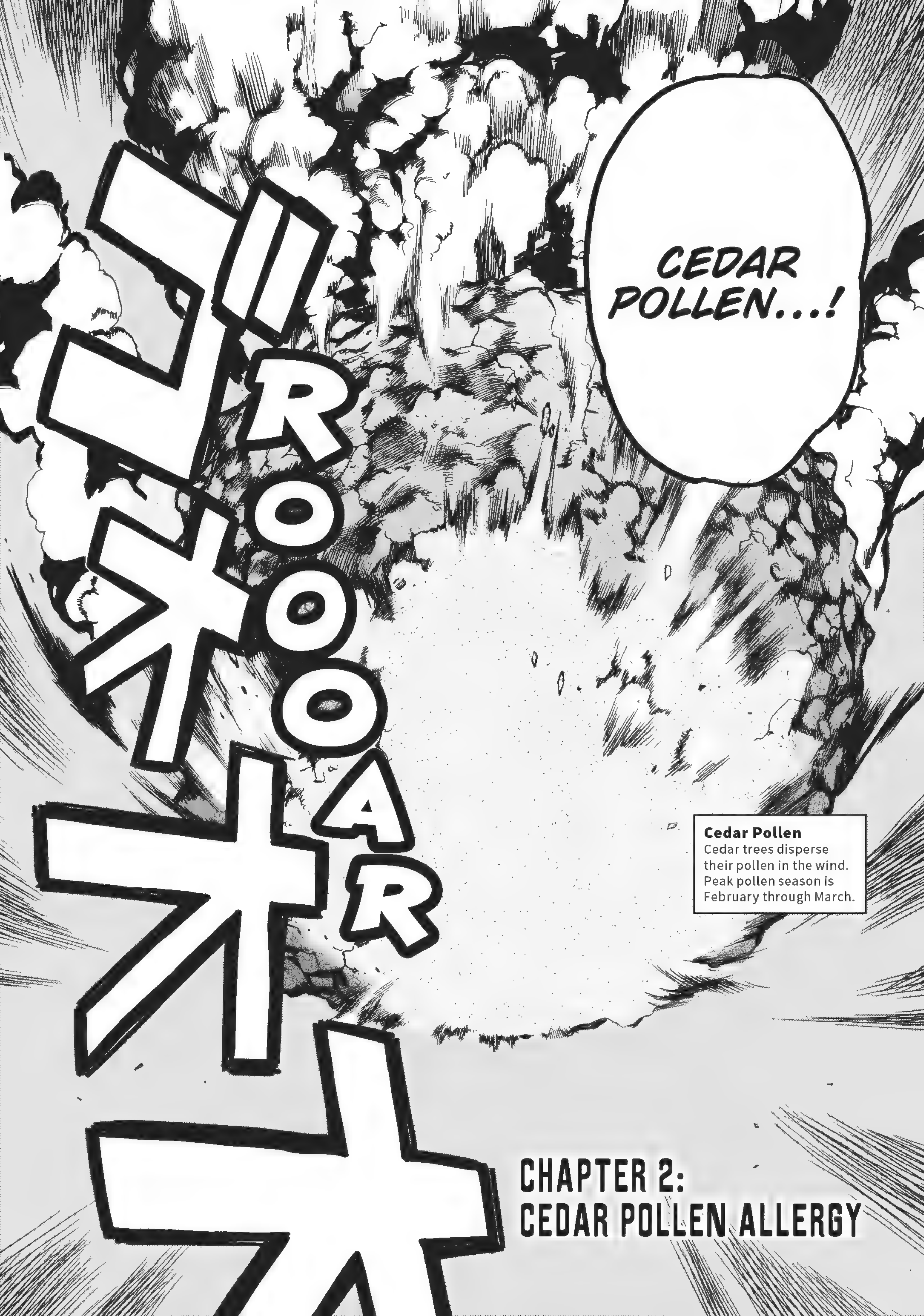
CHAPTER 1: END

Cells at
はたらく細胞 Work!


TARGET INBOUND!
SIZE, 30 NM!
TIME TO CONTACT, TEN SECONDS... NINE!
COM-MANDER!
SO THEY'RE BACK AGAIN...
...THIS YEAR, TOO!

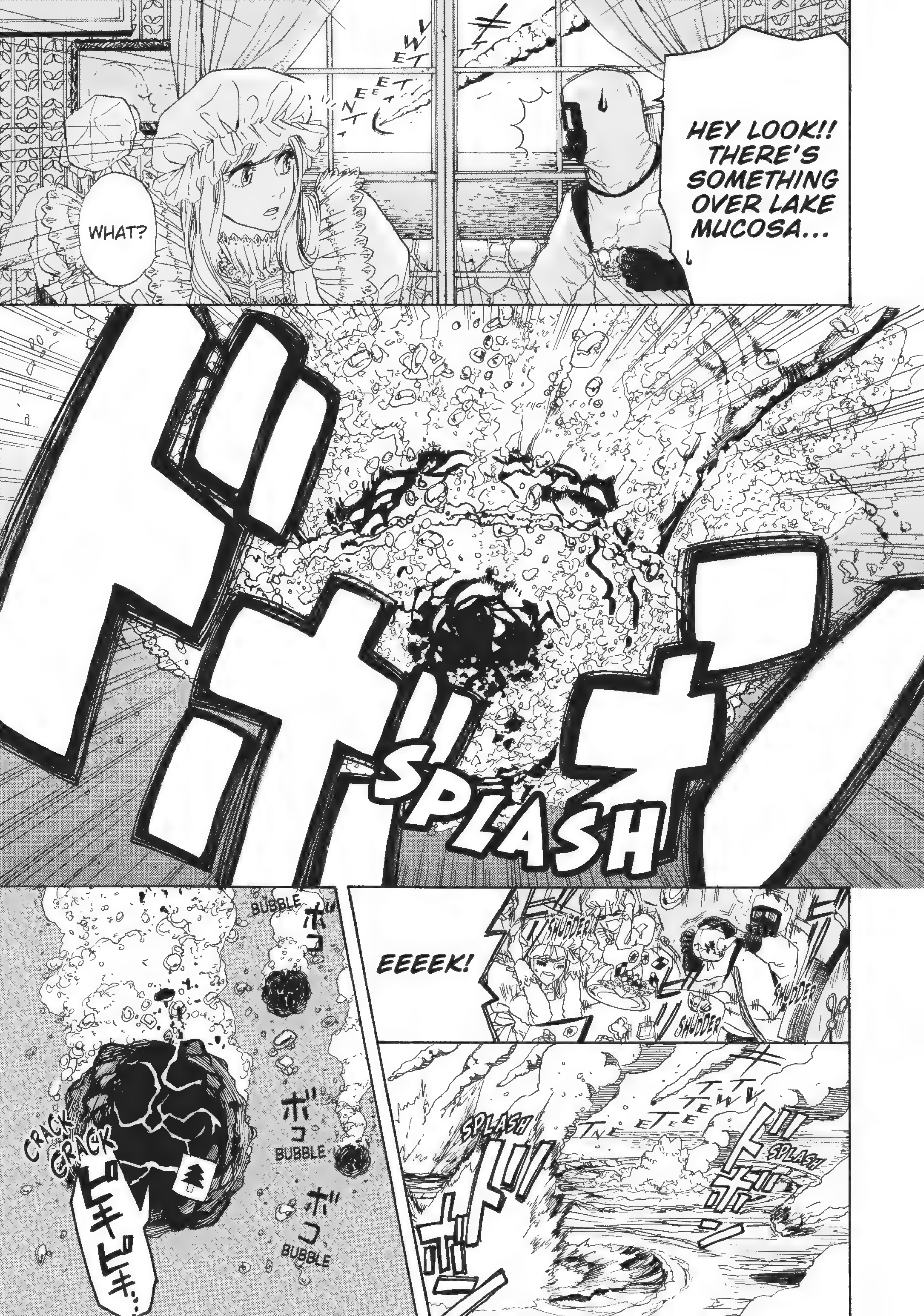
NOTE: 1 NM = 0.001 μM = 0.000001 MM = ONE BILLIONTH OF A METER

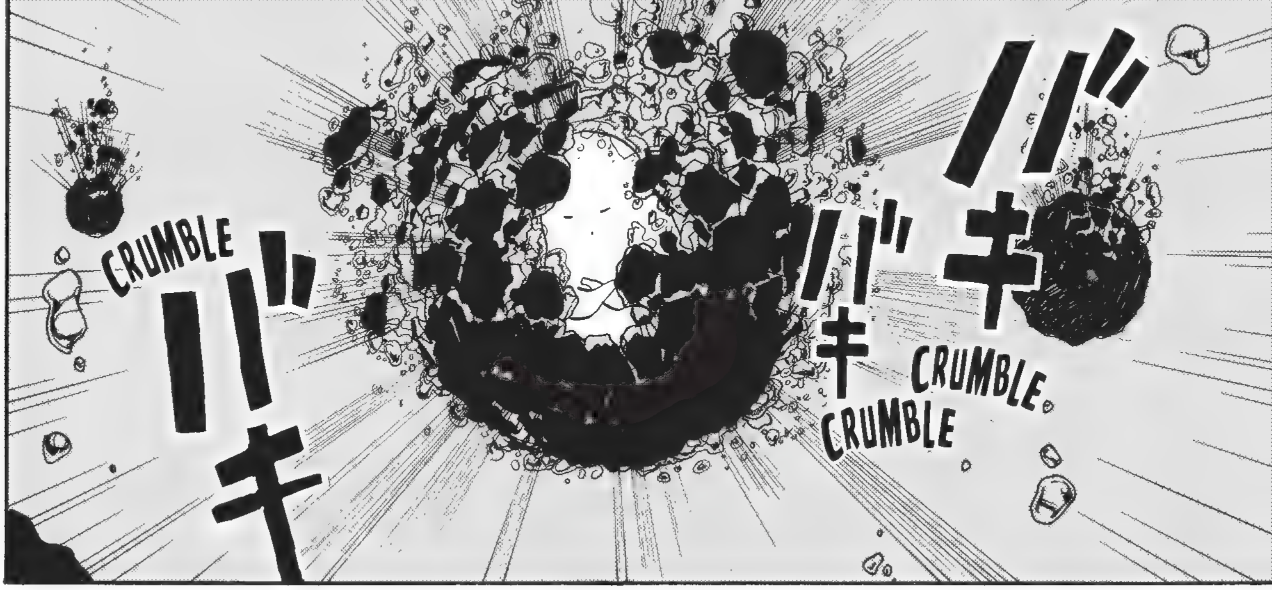
Helper T Cell
In the event of a foreign invasion, these cells act as commanders. They determine the appropriate strategic response based on the intelligence on the nature of the invaders.

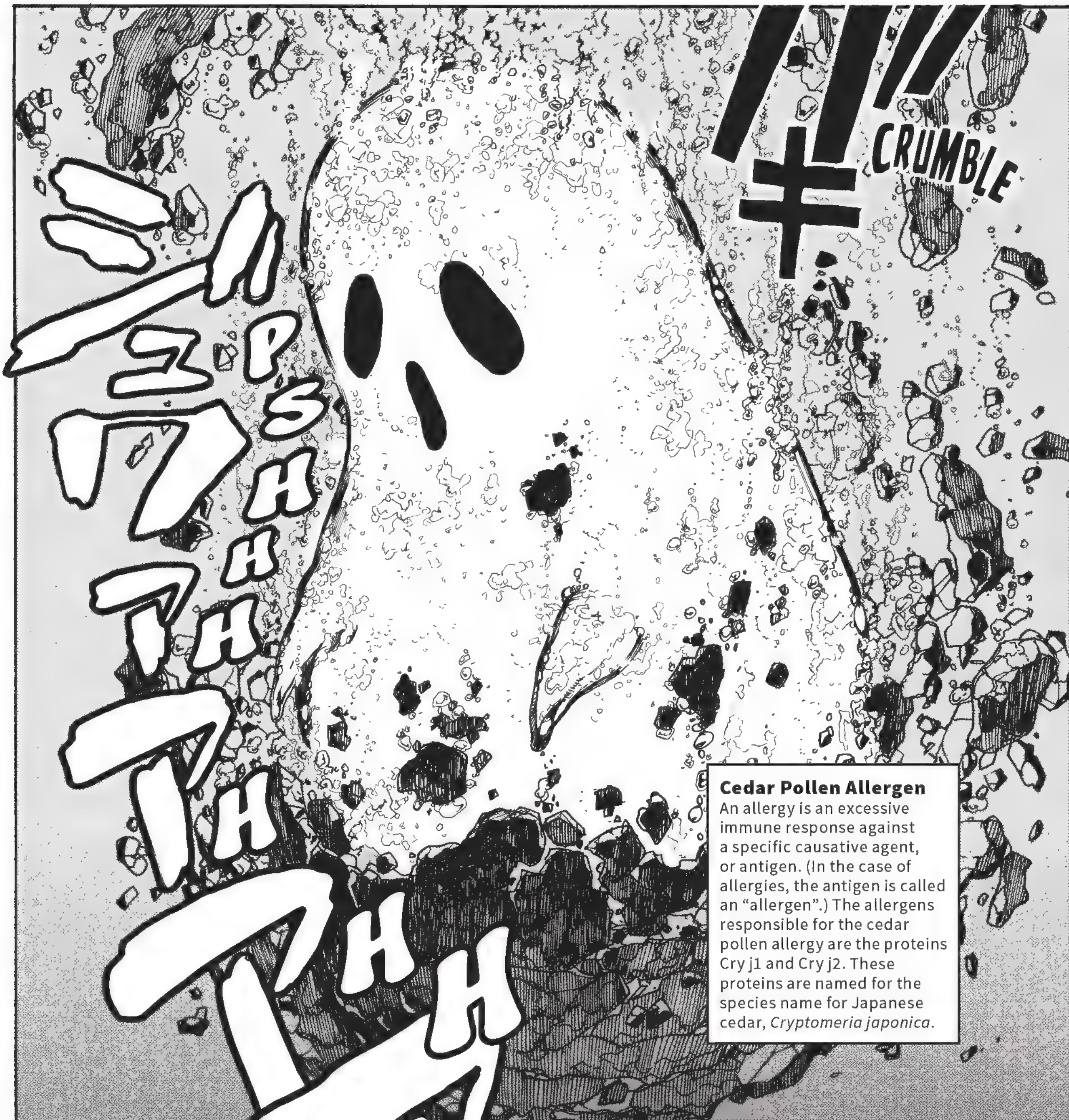

CEDAR POLLEN...!
ゴオオオ
ROOOAR

Cedar Pollen
Cedar trees disperse their pollen in the wind. Peak pollen season is February through March.

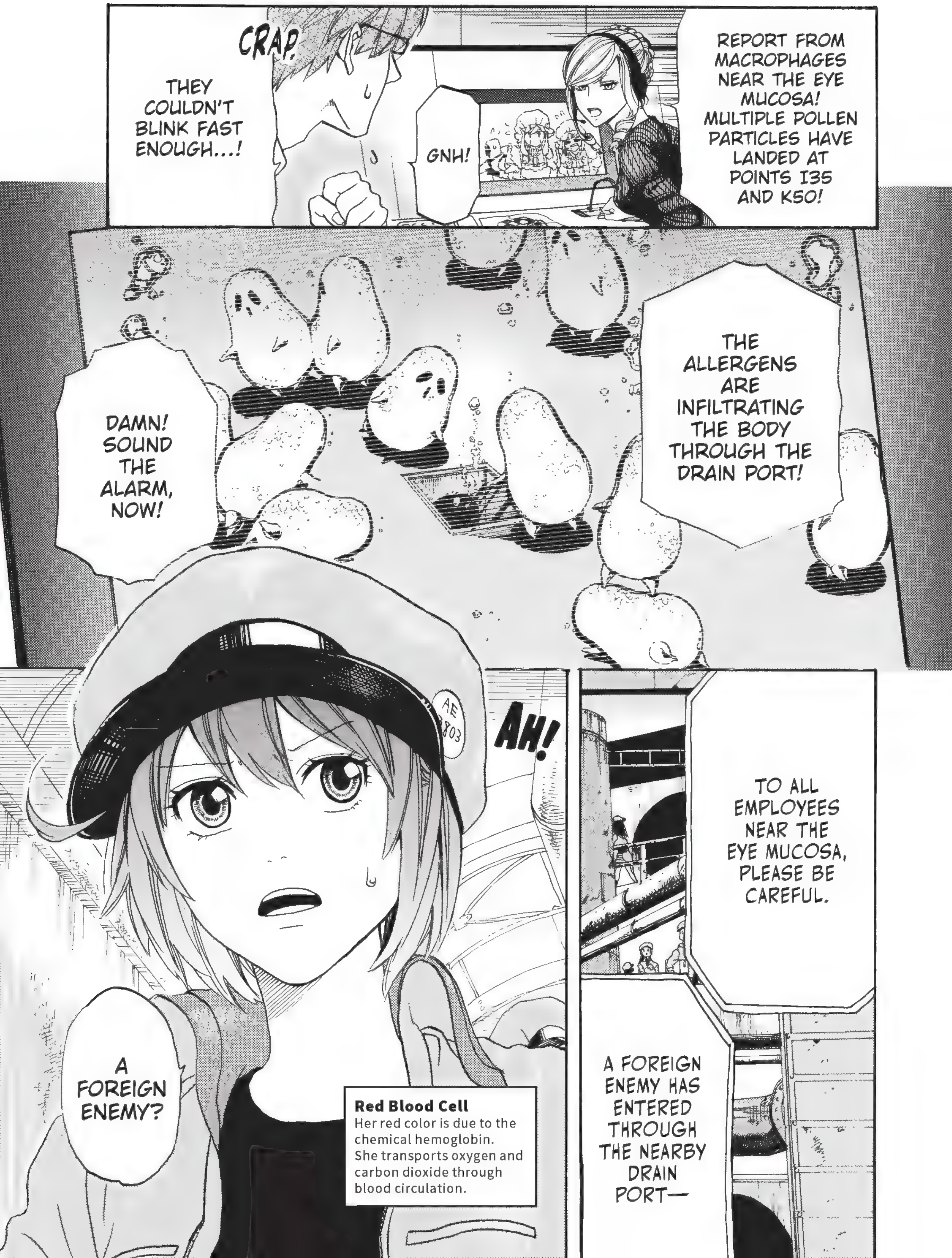
CHAPTER 2:
CEDAR POLLEN ALLERGY


HEY LOOK!! THERE'S SOMETHING OVER LAKE MUCOSA...
WHAT?
ドボォン
SPLASH
EEEEK!
SHUDDER
SHUDDER
SHUDDER
SPLASH
SPLASH
ボコ
BUBBLE
ボコ
BUBBLE
ボコ
BUBBLE
CRACK CRACK
ピキピキ...

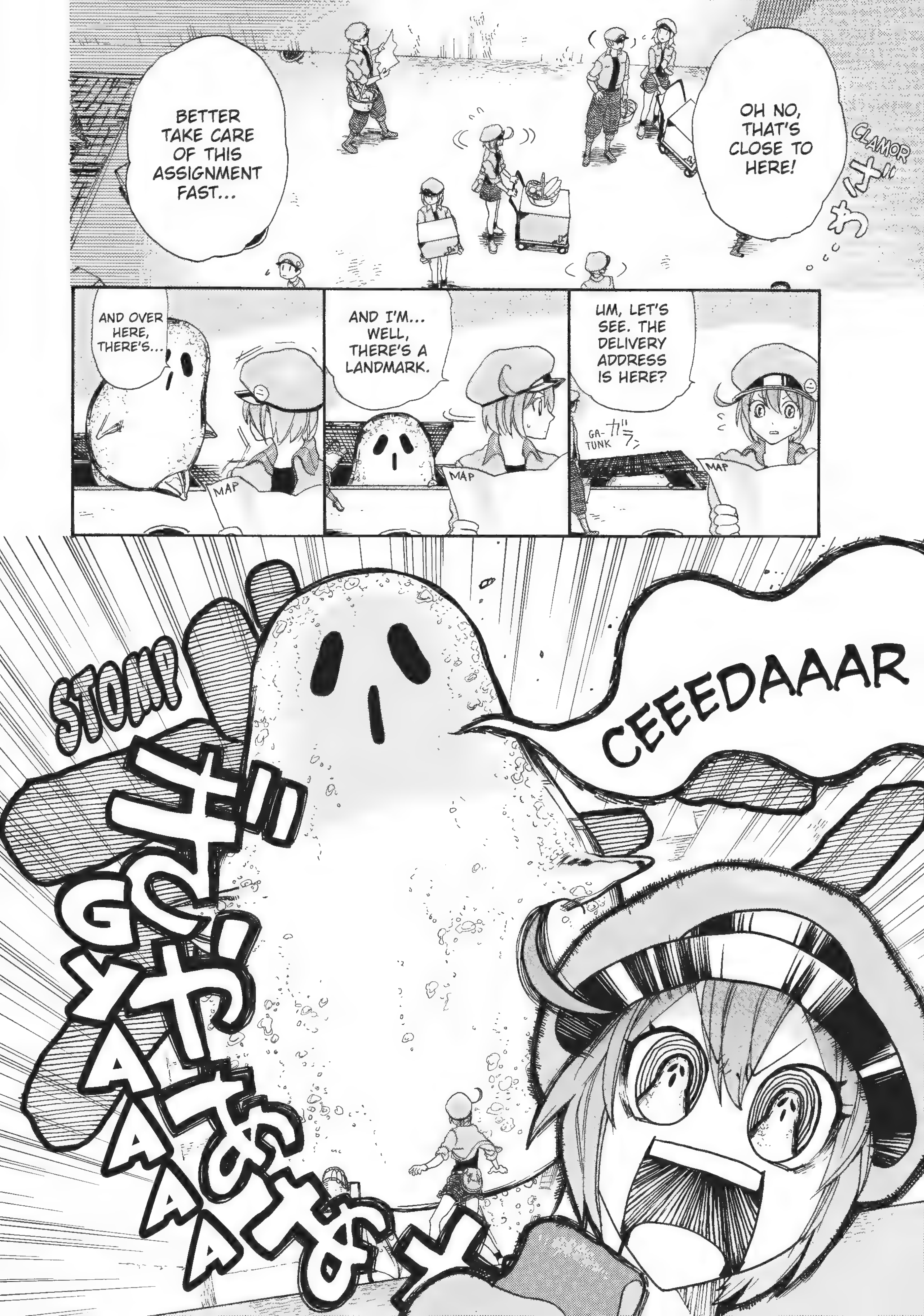

バキ
バキ
CRUMBLE
CRUMBLE
バキ
CRUMBLE

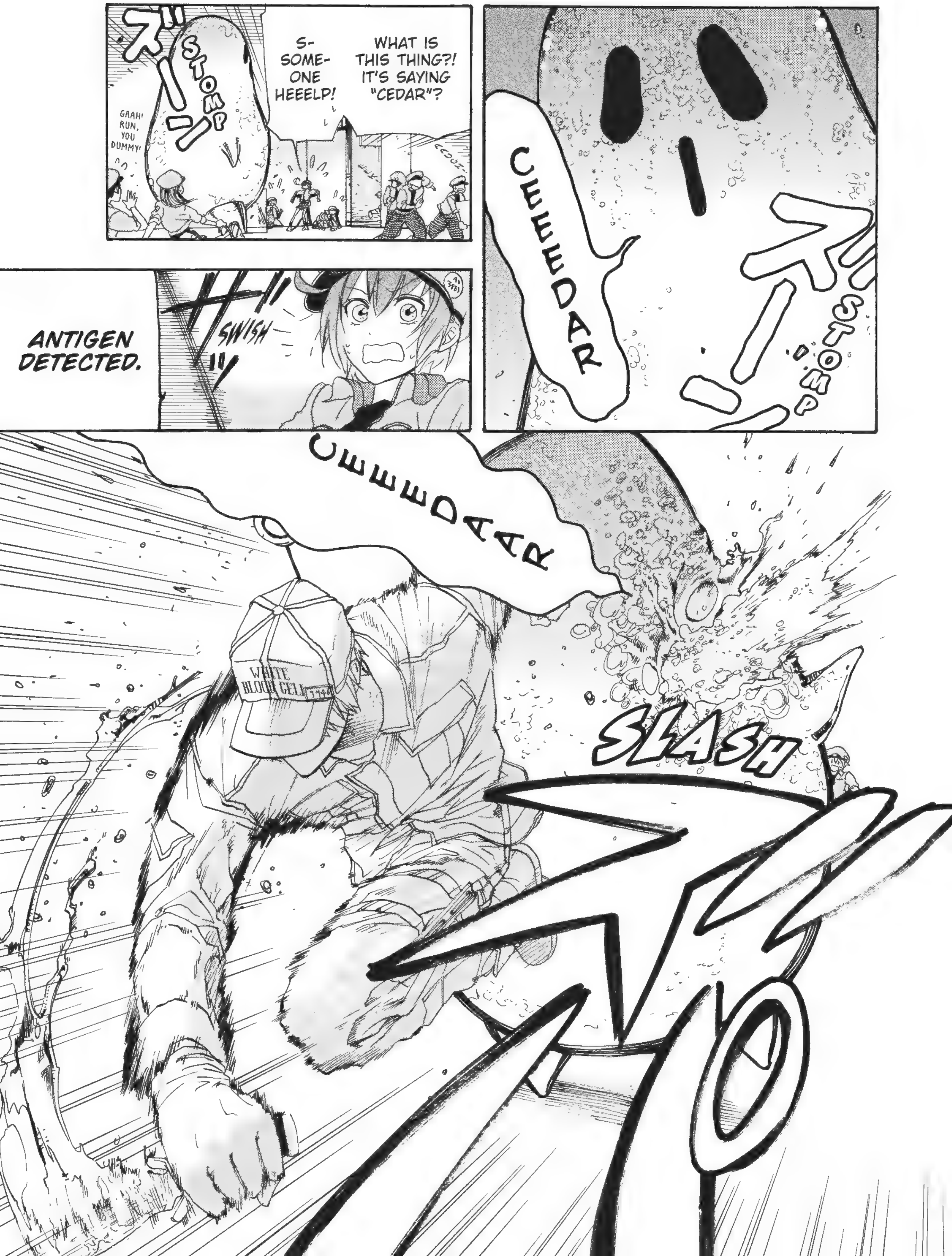

バキ
CRUMBLE
シュワアアアー
PSHHHHHHH

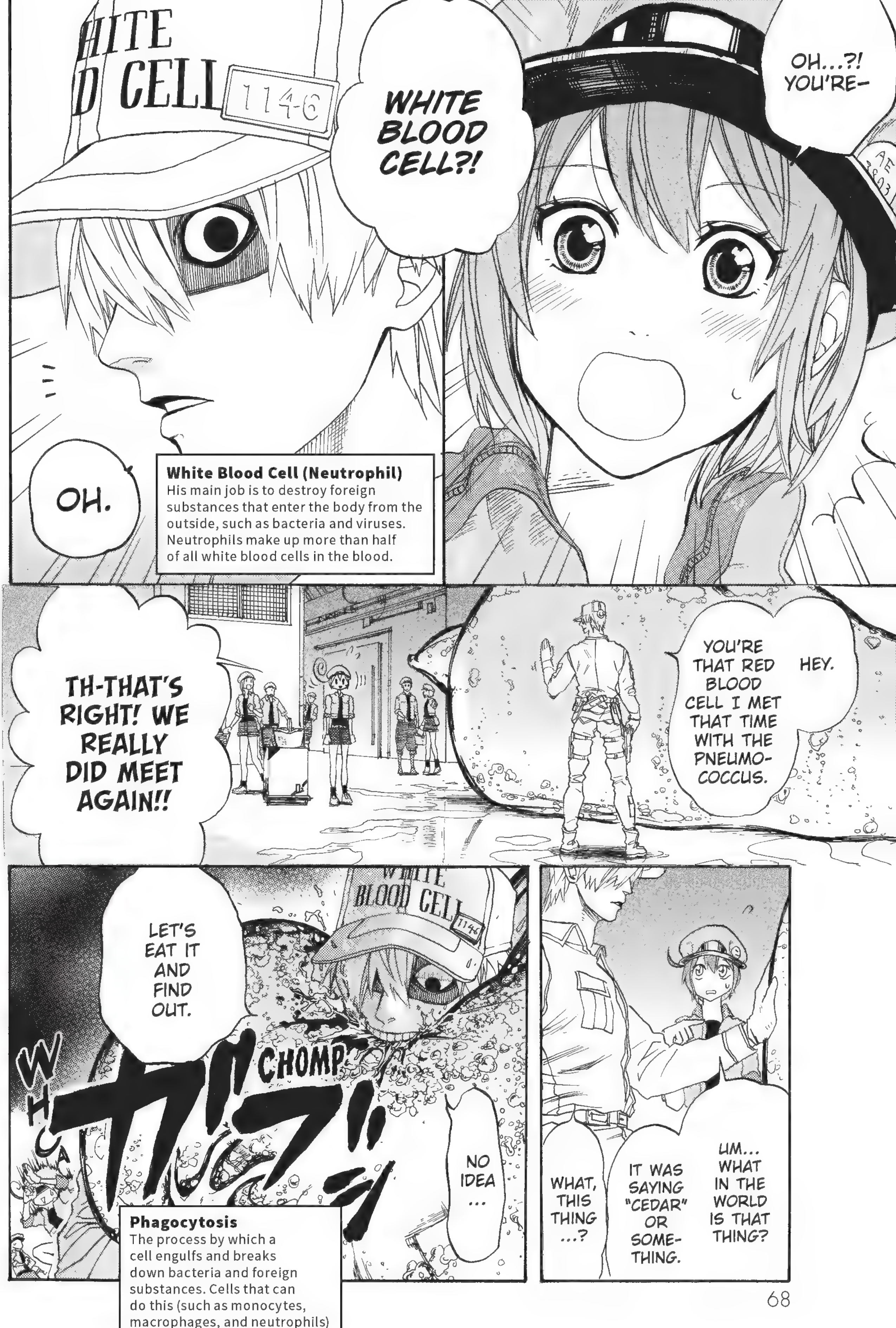
Cedar Pollen Allergen
An allergy is an excessive immune response against a specific causative agent, or antigen. (In the case of allergies, the antigen is called an "allergen".) The allergens responsible for the cedar pollen allergy are the proteins Cry j1 and Cry j2. These proteins are named for the species name for Japanese cedar, *Cryptomeria japonica*.


REPORT FROM MACROPHAGES NEAR THE EYE MUCOSA! MULTIPLE POLLEN PARTICLES HAVE LANDED AT POINTS I35 AND K50!
GNH!
CRAP.
THEY COULDN'T BLINK FAST ENOUGH...!
THE ALLERGENS ARE INFILTRATING THE BODY THROUGH THE DRAIN PORT!
DAMN! SOUND THE ALARM, NOW!
TO ALL EMPLOYEES NEAR THE EYE MUCOSA, PLEASE BE CAREFUL.
A FOREIGN ENEMY HAS ENTERED THROUGH THE NEARBY DRAIN PORT—
AH!
AE 3803
A FOREIGN ENEMY?

Red Blood Cell
Her red color is due to the chemical hemoglobin. She transports oxygen and carbon dioxide through blood circulation.


OH NO, THAT'S CLOSE TO HERE!
CLAMOR ざわ
BETTER TAKE CARE OF THIS ASSIGNMENT FAST...
UM, LET'S SEE. THE DELIVERY ADDRESS IS HERE?
GA-TUNK ガラ
MAP
AND I'M... WELL, THERE'S A LANDMARK.
MAP
AND OVER HERE, THERE'S...
MAP
CEEEDAAAR
GYAAAAAY ぎゃあああ
STOMP
GC ギ

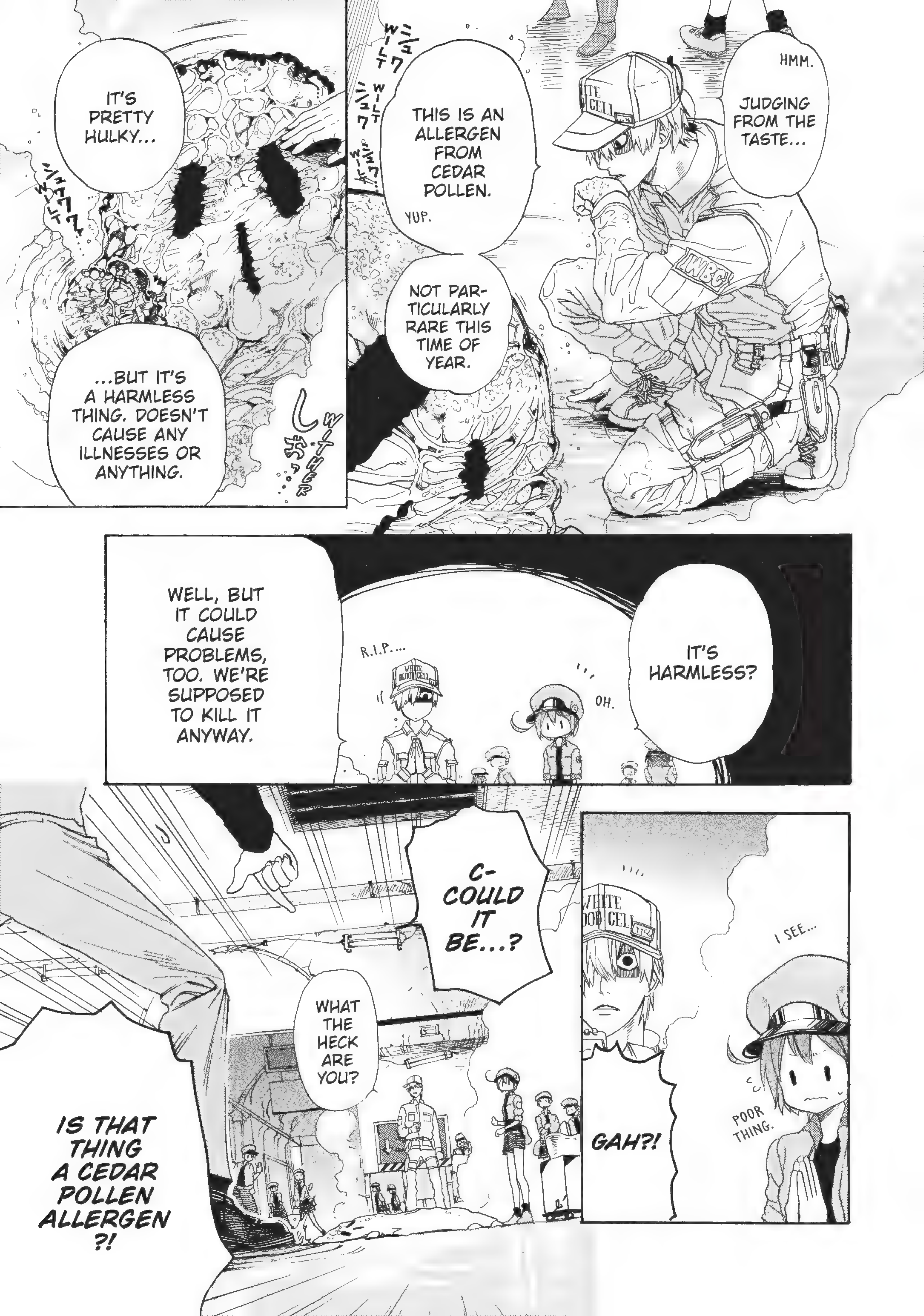

CEEEDAR
STOMP
WHAT IS THIS THING?! IT'S SAYING "CEDAR"?
S-SOMEONE HEEELP!
GAAH! RUN, YOU DUMMY!
STOMP
SWISH
ANTIGEN DETECTED.
CEEEEDAR
WHITE BLOOD CELL
SLASH

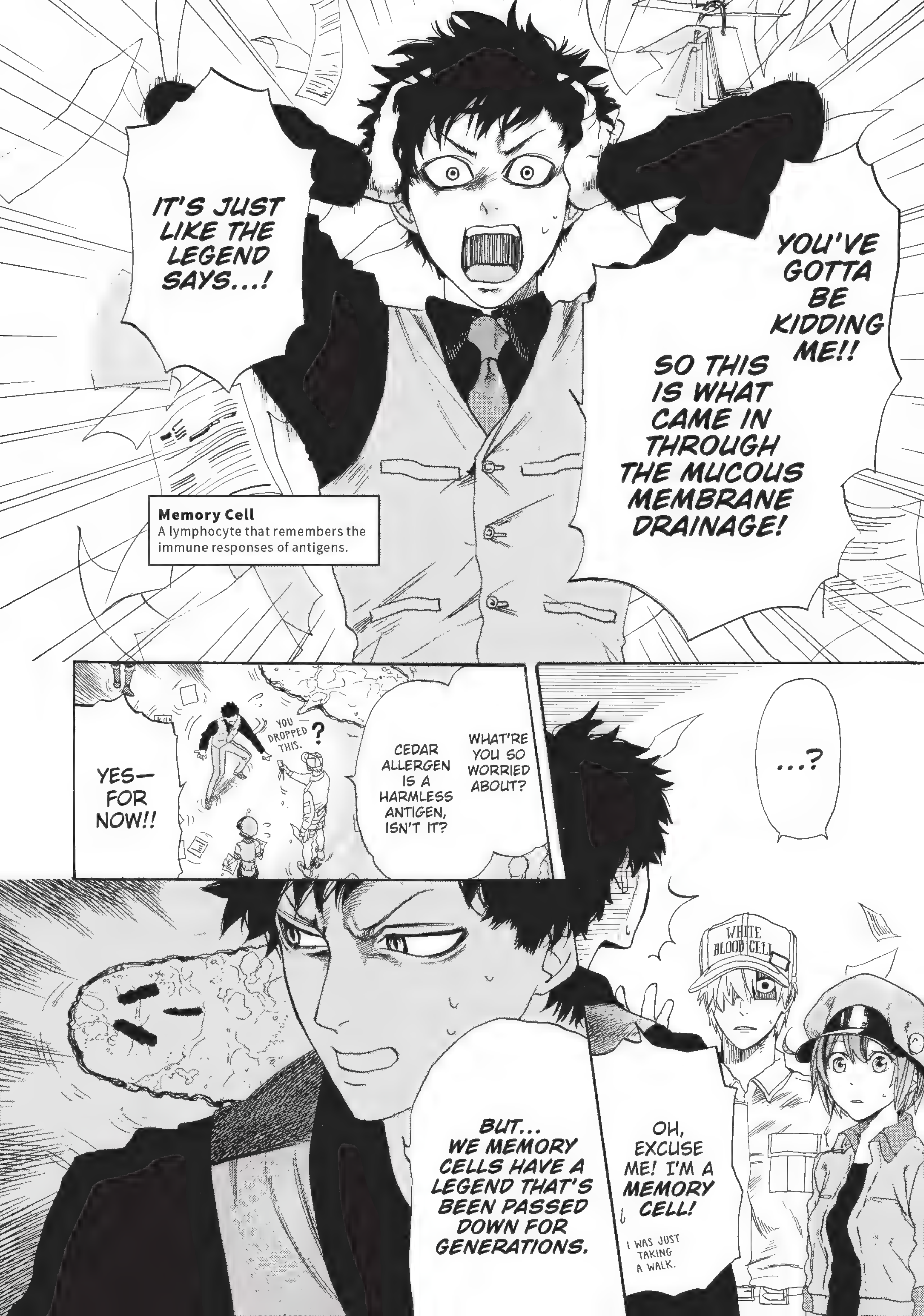


OH...?! YOU'RE—
WHITE BLOOD CELL?!
HITE
D CELL
1146
OH.
HEY.
YOU'RE THAT RED BLOOD CELL I MET THAT TIME WITH THE PNEUMOCOCCUS.
TH-THAT'S RIGHT! WE REALLY DID MEET AGAIN!!
UM... WHAT IN THE WORLD IS THAT THING?
IT WAS SAYING "CEDAR" OR SOMETHING.
WHAT, THIS THING ...?
NO IDEA ...
WHITE BLOOD CELL
1146
LET'S EAT IT AND FIND OUT.
CHOMP
WHCA

White Blood Cell (Neutrophil)
His main job is to destroy foreign substances that enter the body from the outside, such as bacteria and viruses. Neutrophils make up more than half of all white blood cells in the blood.

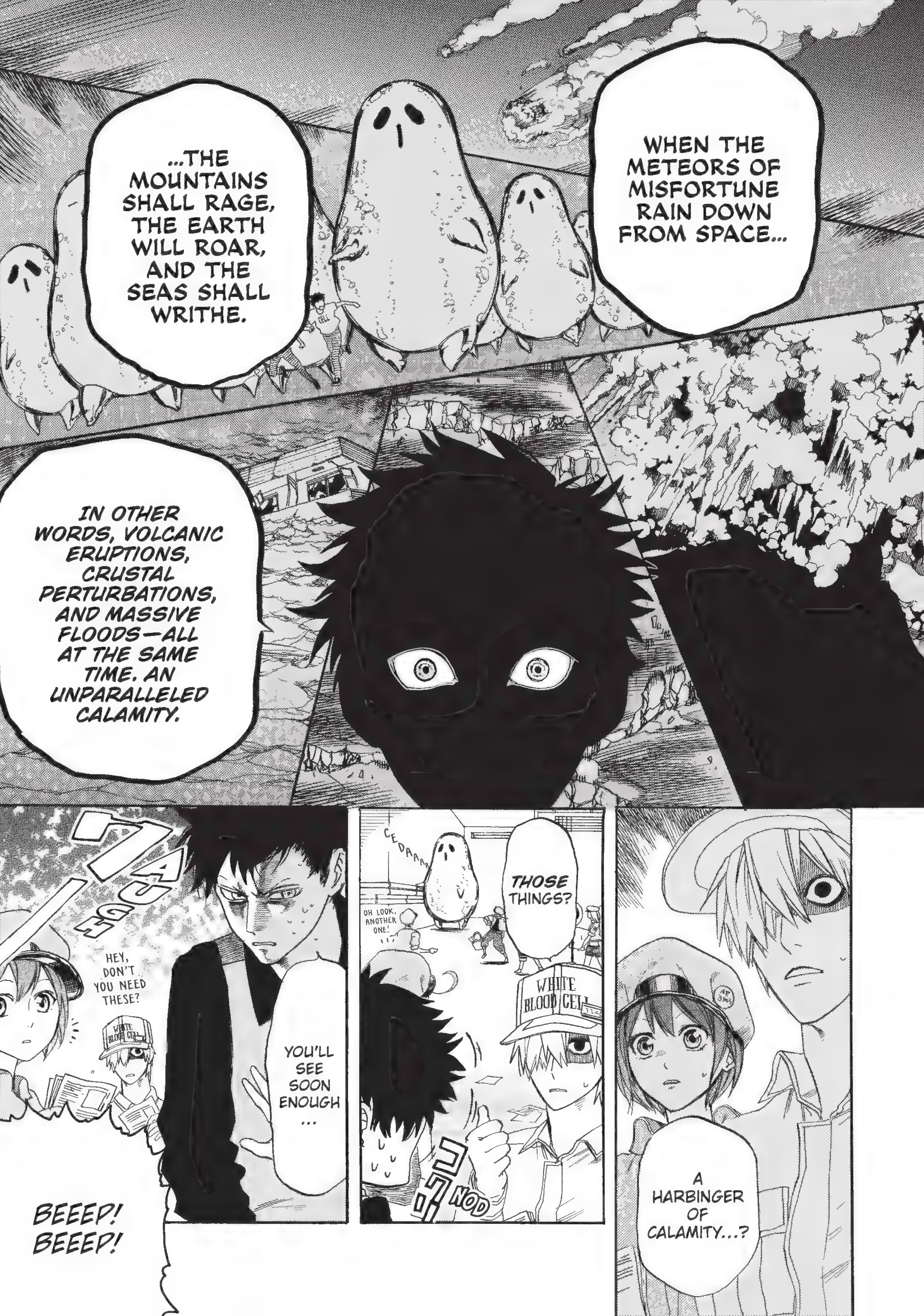
Phagocytosis
The process by which a cell engulfs and breaks down bacteria and foreign substances. Cells that can do this (such as monocytes, macrophages, and neutrophils) are called phagocytes.

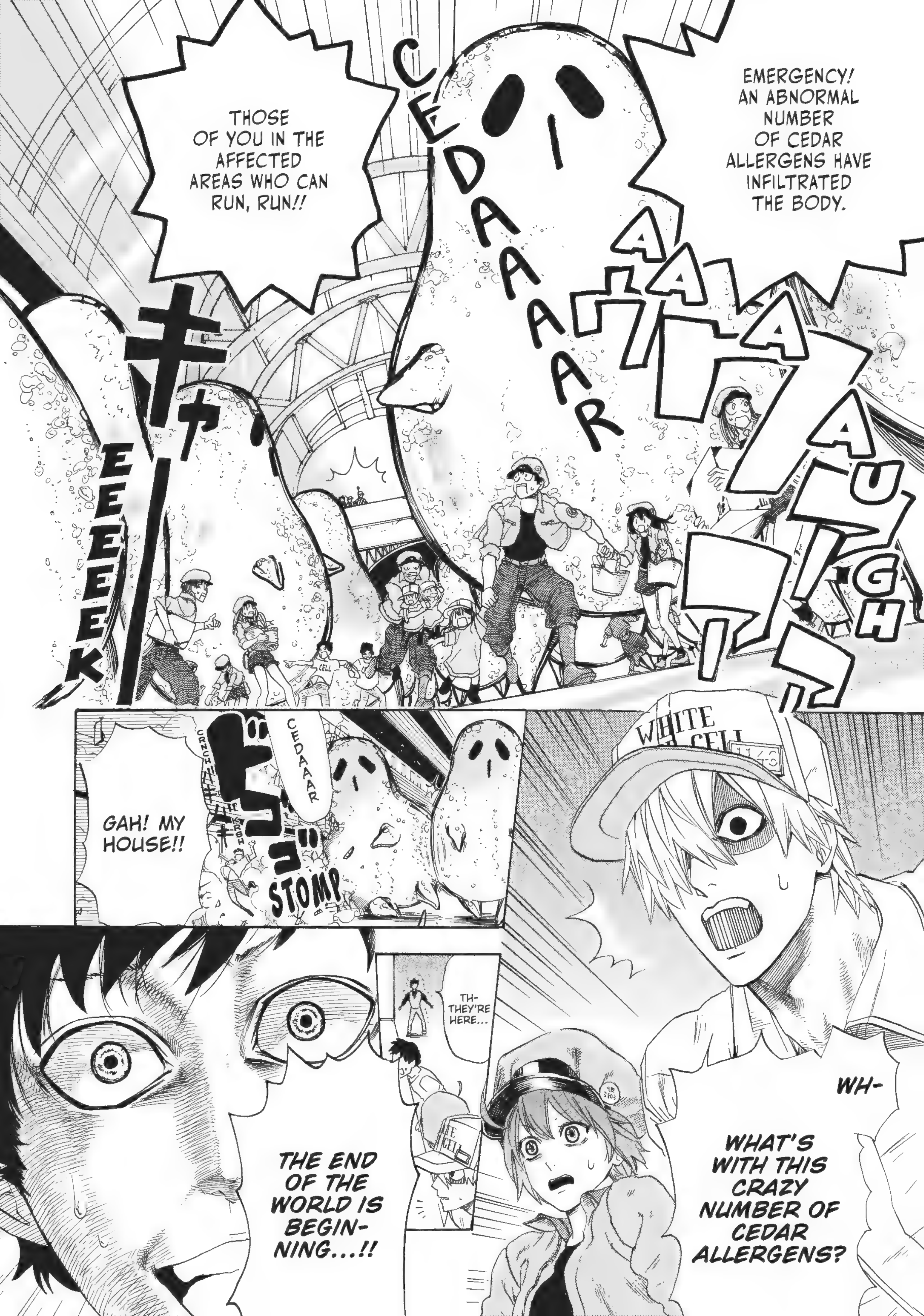

HMM.
JUDGING FROM THE TASTE...
THIS IS AN ALLERGEN FROM CEDAR POLLEN.
YUP.
NOT PARTICULARLY RARE THIS TIME OF YEAR.
WILT
WILT
WILT
IT'S PRETTY HULKY...
WILT
...BUT IT'S A HARMLESS THING. DOESN'T CAUSE ANY ILLNESSES OR ANYTHING.
WITHER
IT'S HARMLESS?
OH.
R.I.P....
WELL, BUT IT COULD CAUSE PROBLEMS, TOO. WE'RE SUPPOSED TO KILL IT ANYWAY.
I SEE...
POOR THING.
GAH?!
C-COULD IT BE...?
WHAT THE HECK ARE YOU?
IS THAT THING A CEDAR POLLEN ALLERGEN?!

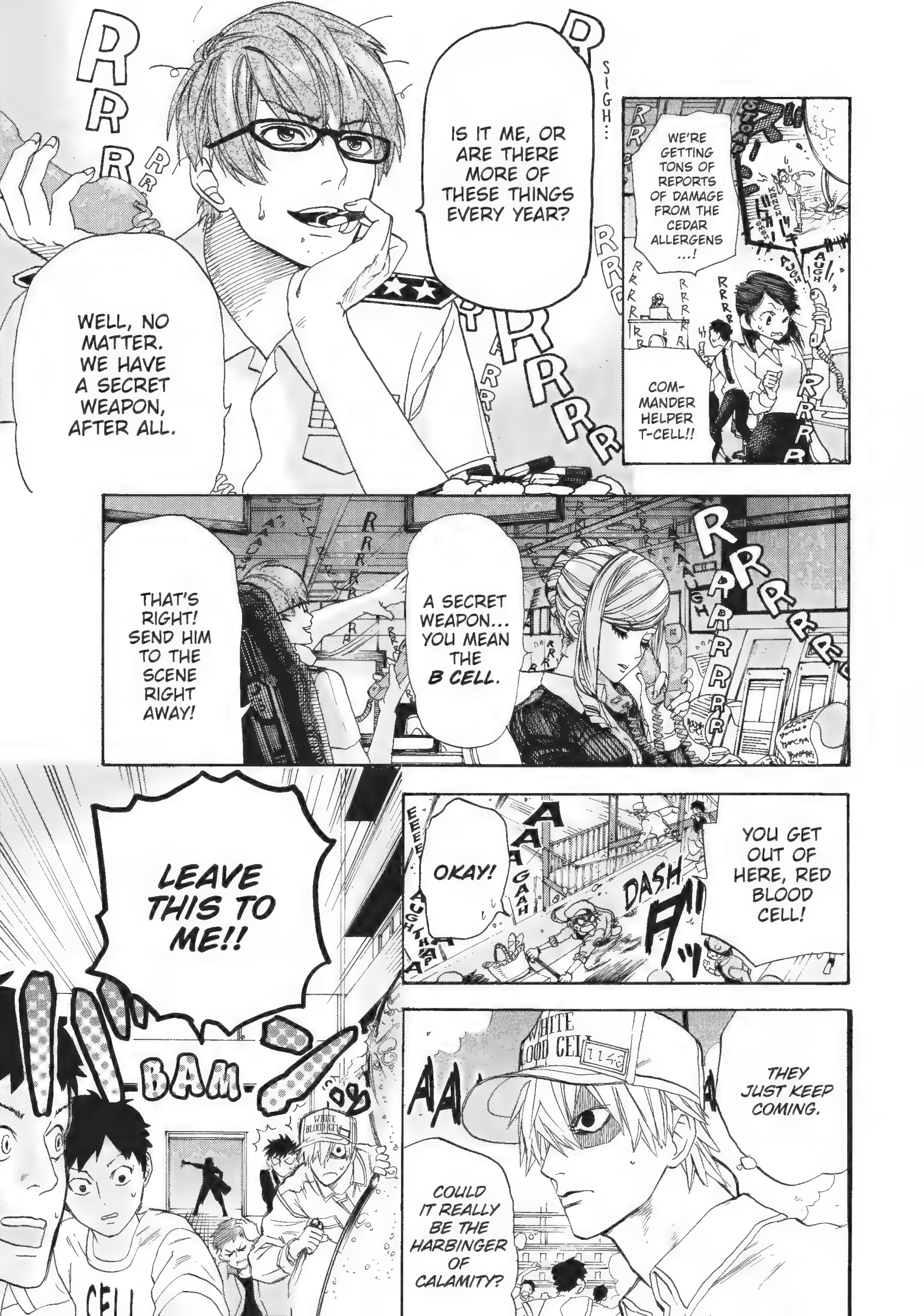


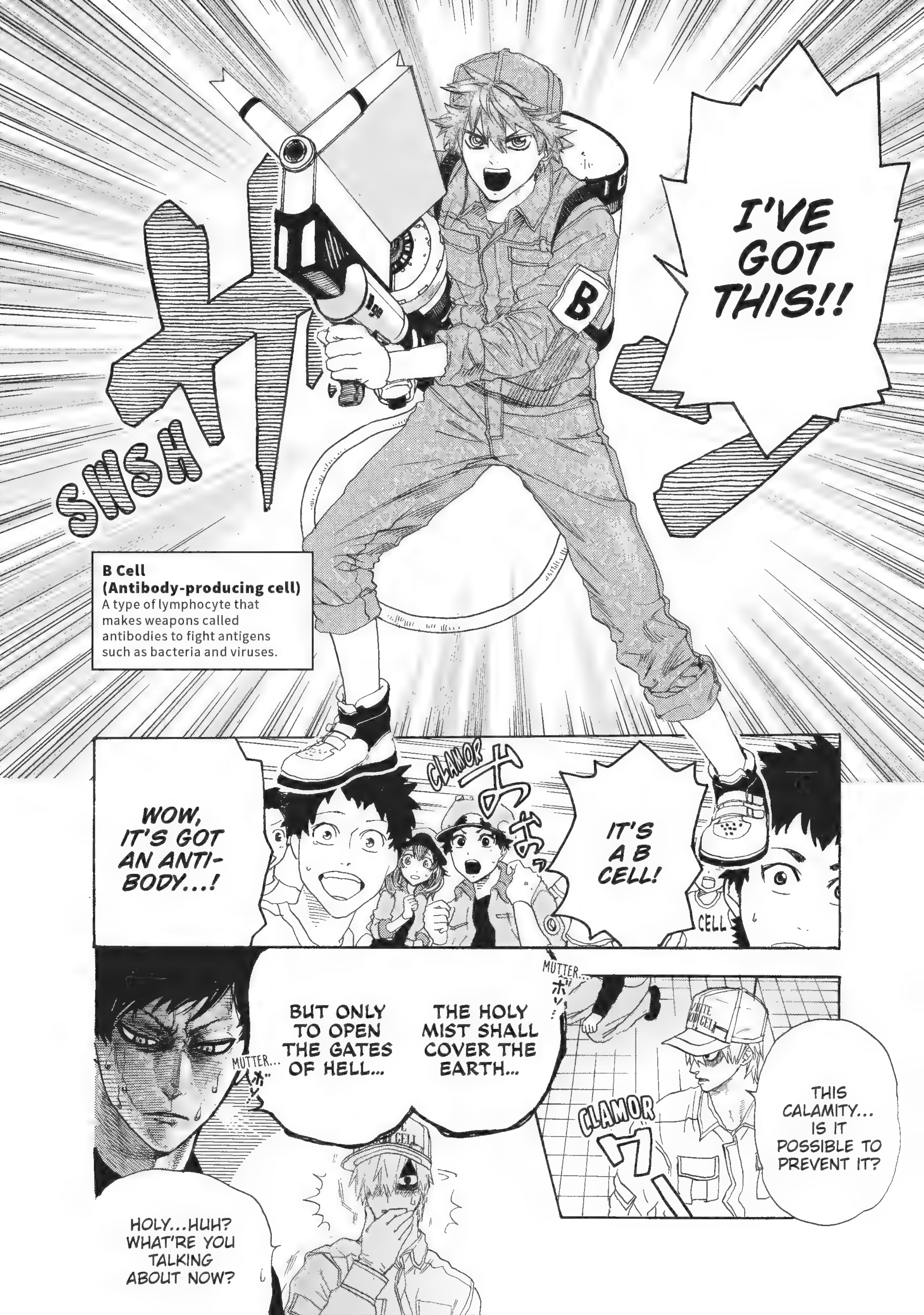
Memory Cell
A lymphocyte that remembers the immune responses of antigens.

YOU'VE GOTTA BE KIDDING ME!!
SO THIS IS WHAT CAME IN THROUGH THE MUCOUS MEMBRANE DRAINAGE!
IT'S JUST LIKE THE LEGEND SAYS...!
...?
WHAT'RE YOU SO WORRIED ABOUT?
CEDAR ALLERGEN IS A HARMLESS ANTIGEN, ISN'T IT?
?
YOU DROPPED THIS.
YES— FOR NOW!!
WHITE BLOOD CELL
OH, EXCUSE ME! I'M A MEMORY CELL!
I WAS JUST TAKING A WALK.
BUT... WE MEMORY CELLS HAVE A LEGEND THAT'S BEEN PASSED DOWN FOR GENERATIONS.


WHEN THE METEORS OF MISFORTUNE RAIN DOWN FROM SPACE...
...THE MOUNTAINS SHALL RAGE, THE EARTH WILL ROAR, AND THE SEAS SHALL WRITHE.
IN OTHER WORDS, VOLCANIC ERUPTIONS, CRUSTAL PERTURBATIONS, AND MASSIVE FLOODS—ALL AT THE SAME TIME. AN UNPARALLELED CALAMITY.
A HARBINGER OF CALAMITY...?
THOSE THINGS?
CEDAAAR
OH LOOK, ANOTHER ONE!
NOD
YOU'LL SEE SOON ENOUGH...
ZAUGH
HEY, DON'T YOU NEED THESE?
BEEEP! BEEEP!

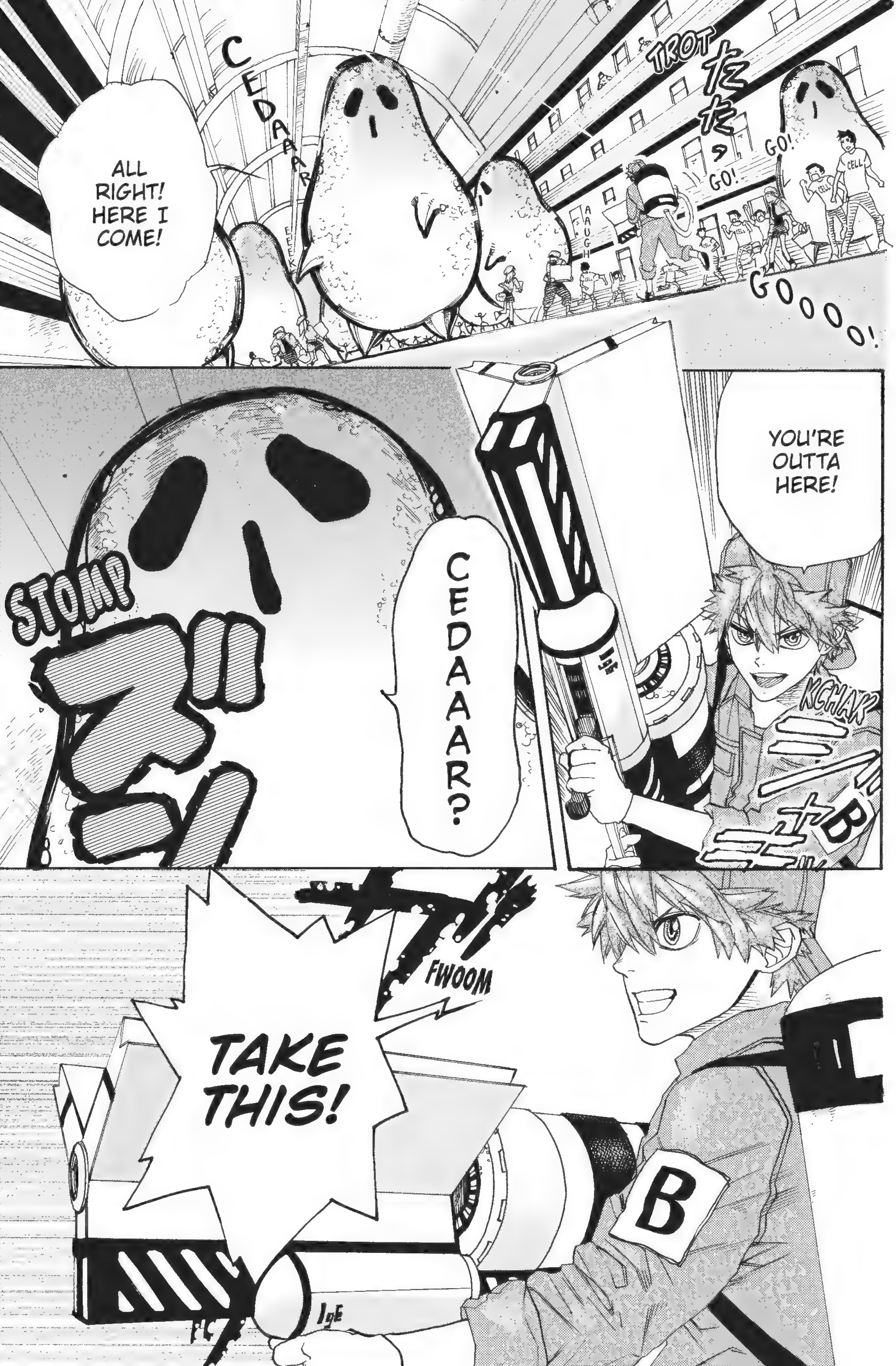

EMERGENCY! AN ABNORMAL NUMBER OF CEDAR ALLERGENS HAVE INFILTRATED THE BODY.
THOSE OF YOU IN THE AFFECTED AREAS WHO CAN RUN, RUN!!
AAAAUGH
CEDAAAAR
EEEEEEEK
CEDAAAR
CRNCH
KRSH
STOMP
GAH! MY HOUSE!!
WH-
WHAT'S WITH THIS CRAZY NUMBER OF CEDAR ALLERGENS?
TH-THEY'RE HERE...
THE END OF THE WORLD IS BEGINNING...!!

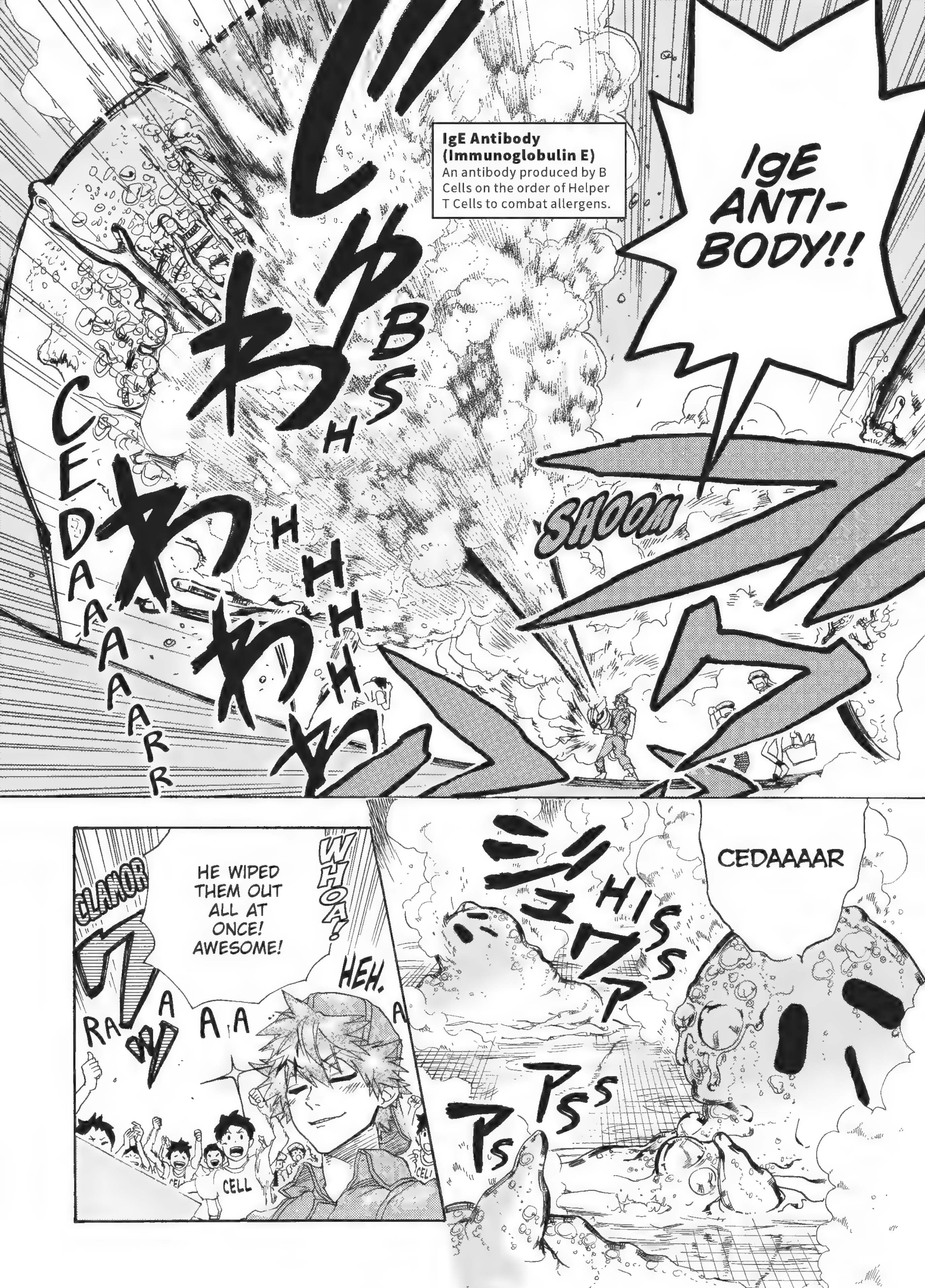

WE'RE GETTING TONS OF REPORTS OF DAMAGE FROM THE CEDAR ALLERGENS ...!
COMMANDER HELPER T-CELL!!
AUGH
SIGH...
IS IT ME, OR ARE THERE MORE OF THESE THINGS EVERY YEAR?
WELL, NO MATTER. WE HAVE A SECRET WEAPON, AFTER ALL.
A SECRET WEAPON... YOU MEAN THE B CELL.
THAT'S RIGHT! SEND HIM TO THE SCENE RIGHT AWAY!
YOU GET OUT OF HERE, RED BLOOD CELL!
OKAY!
DASH
THEY JUST KEEP COMING.
COULD IT REALLY BE THE HARBINGER OF CALAMITY?
LEAVE THIS TO ME!!
BAM



B Cell
(Antibody-producing cell)
A type of lymphocyte that makes weapons called antibodies to fight antigens such as bacteria and viruses.

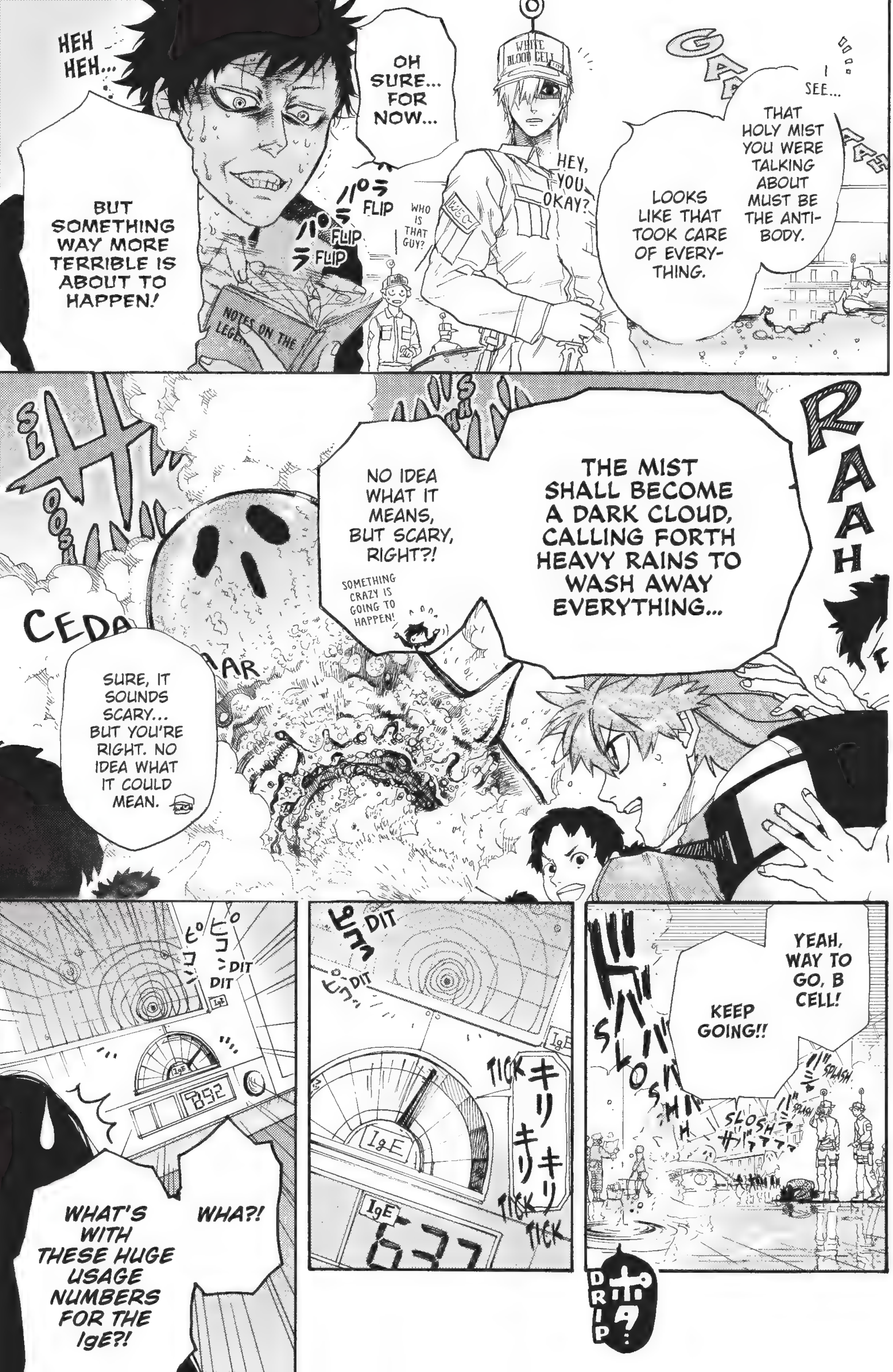
I'VE GOT THIS!!
B
SWSH
CLAMOR
IT'S A B CELL!
CELL
WOW, IT'S GOT AN ANTIBODY...!
THIS CALAMITY... IS IT POSSIBLE TO PREVENT IT?
CLAMOR
MUTTER...
THE HOLY MIST SHALL COVER THE EARTH...
BUT ONLY TO OPEN THE GATES OF HELL...
MUTTER...
HOLY...HUH? WHAT'RE YOU TALKING ABOUT NOW?

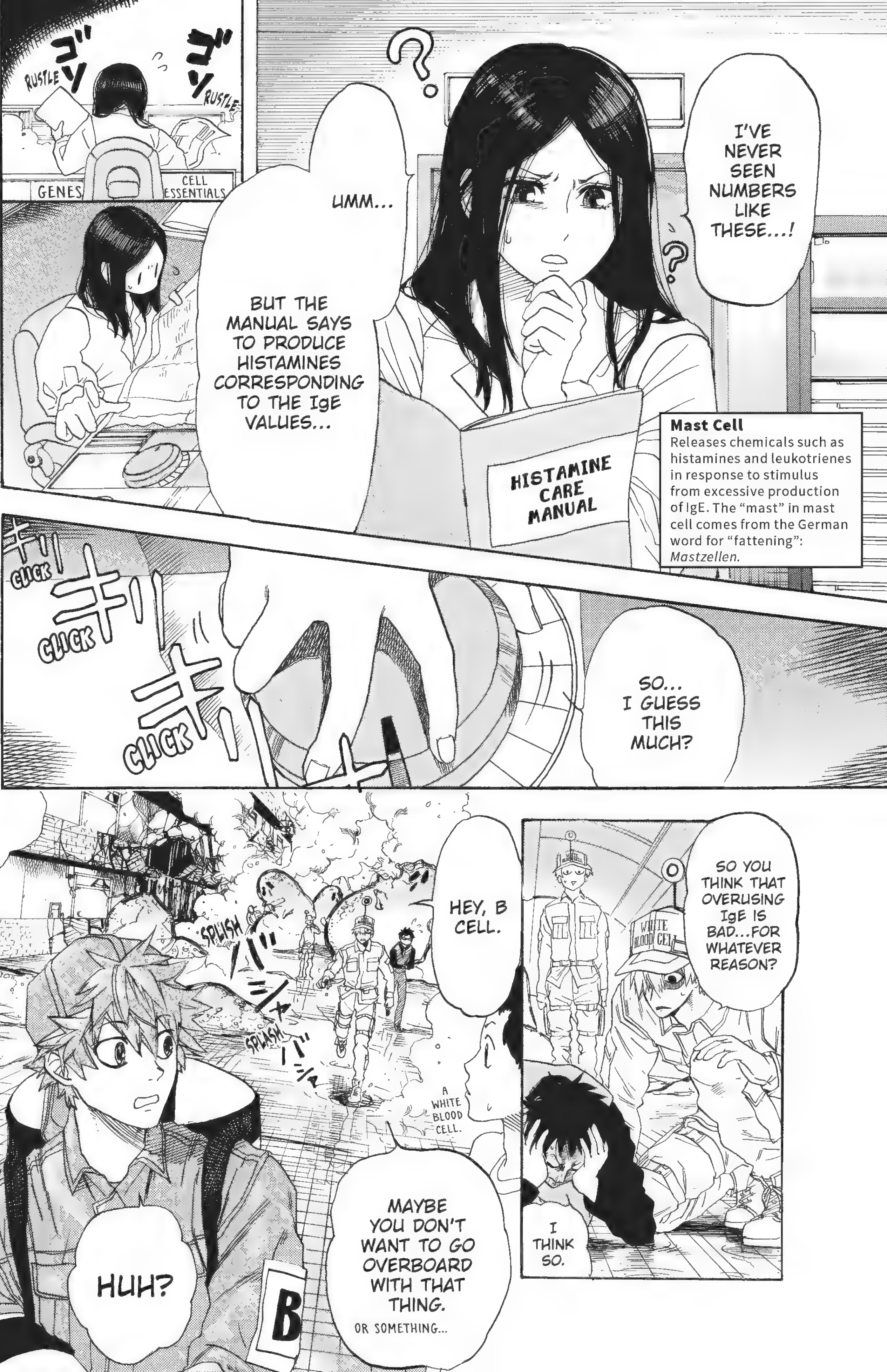

TROT
たたっ
GO!
GO!
GOOOOO!
AAUGH
EEEK
CEDAAAR
ALL RIGHT! HERE I COME!
YOU'RE OUTTA HERE!
KCHAK
CEDAAAR?
STOMP
FWOOM
TAKE THIS!



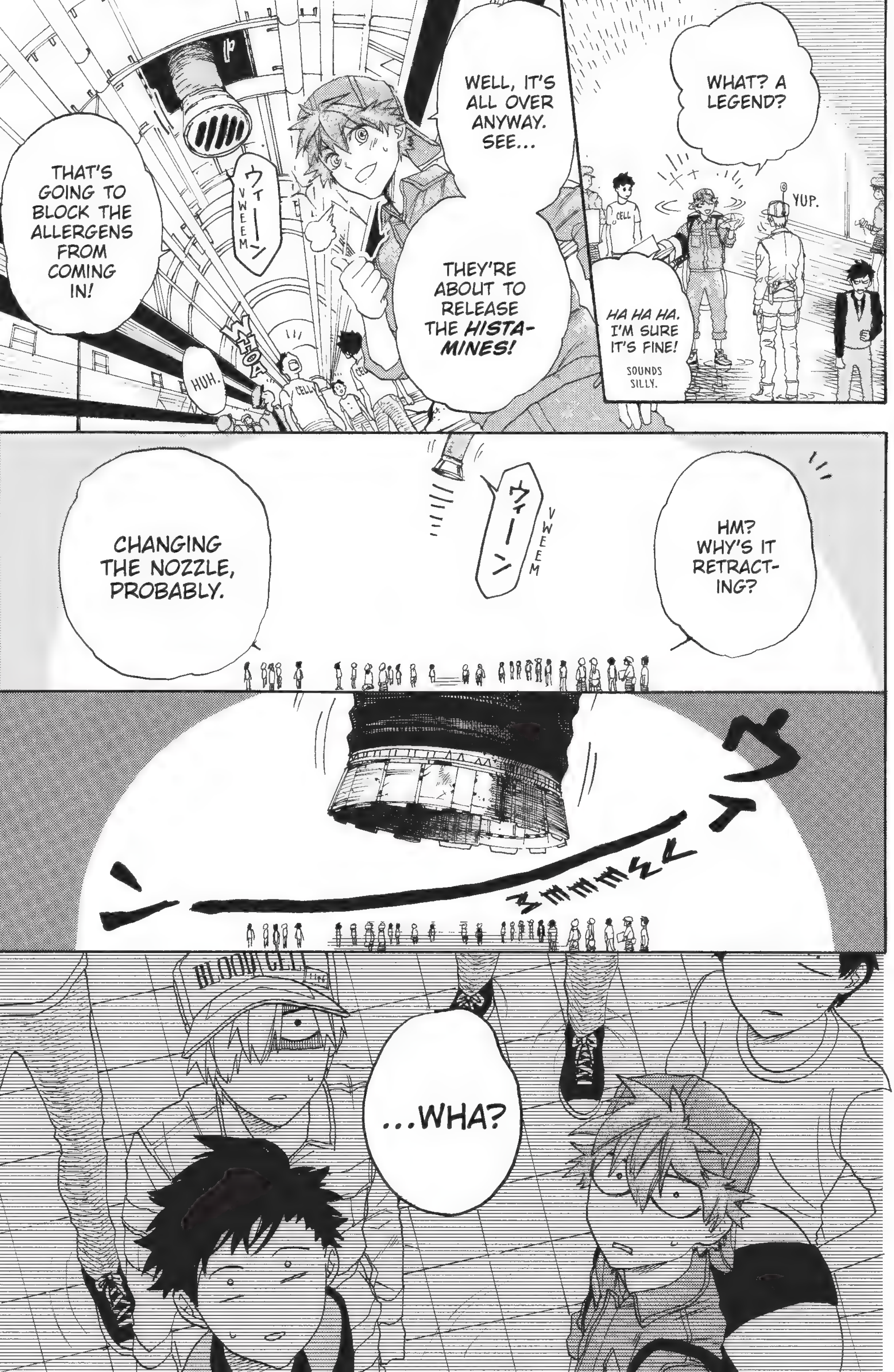
IgE Antibody (Immunoglobulin E)
An antibody produced by B Cells on the order of Helper T Cells to combat allergens.

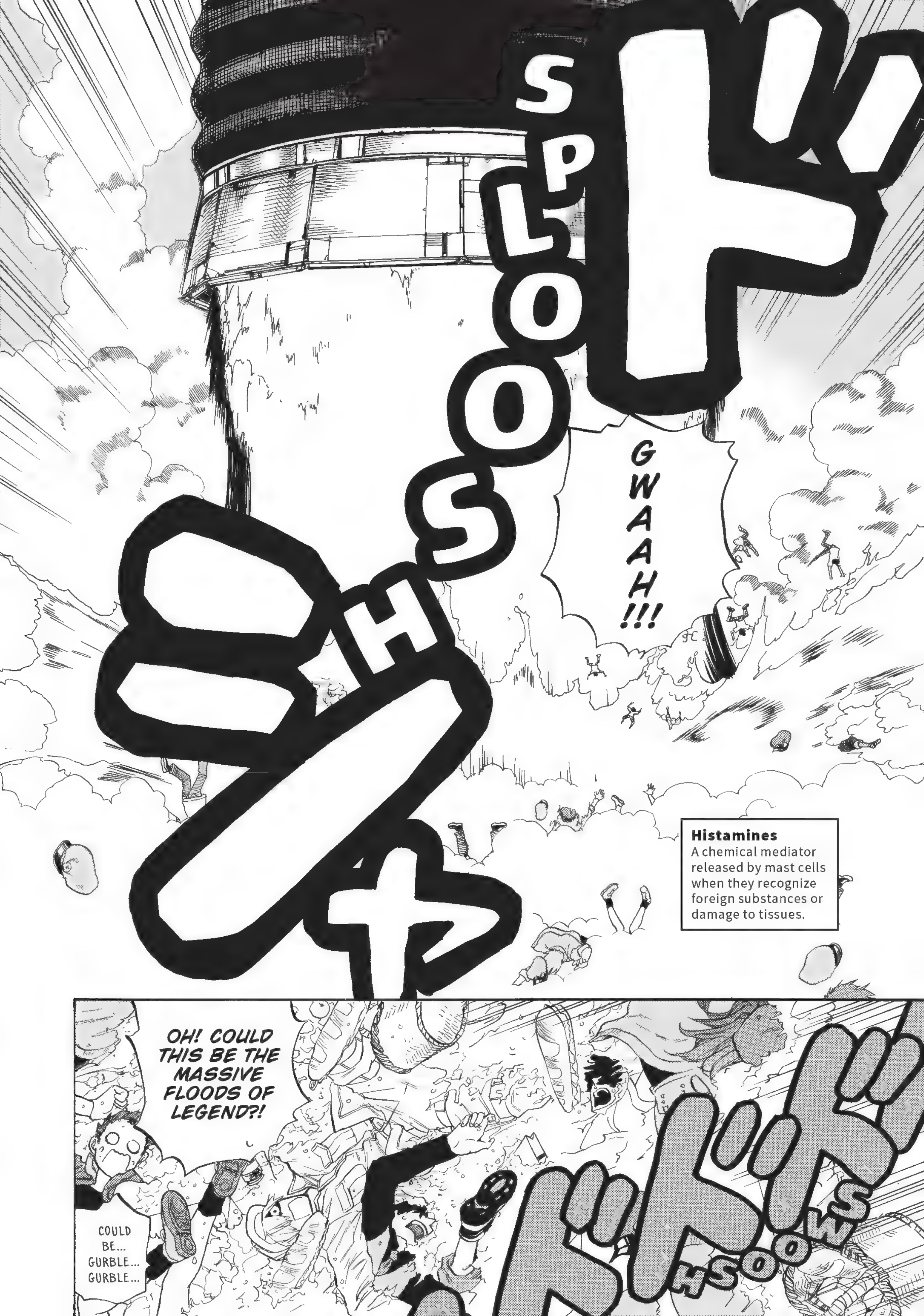
IgE ANTI-BODY!!
SHOOM
じゅわわわわ
BSHHHHHHHHH
CEDAAAAAAAARR
CEDAAAAR
シュワア
HISSS
アア
PSSS
PS
WHOA!
HE WIPED THEM OUT ALL AT ONCE! AWESOME!
HEH.
CLAMOR
RAWAAAAA
CELL
CELL


I SEE...
THAT HOLY MIST YOU WERE TALKING ABOUT MUST BE THE ANTIBODY.
LOOKS LIKE THAT TOOK CARE OF EVERYTHING.
WHITE BLOOD CELL
HEY, YOU OKAY?
WBC
WHO IS THAT GUY?
OH SURE... FOR NOW...
HEH HEH...
パラ FLIP
パラ FLIP
パラ FLIP
NOTES ON THE LEGE
BUT SOMETHING WAY MORE TERRIBLE IS ABOUT TO HAPPEN!
RAAH
THE MIST SHALL BECOME A DARK CLOUD, CALLING FORTH HEAVY RAINS TO WASH AWAY EVERYTHING...
NO IDEA WHAT IT MEANS, BUT SCARY, RIGHT?!
SOMETHING CRAZY IS GOING TO HAPPEN!
SURE, IT SOUNDS SCARY... BUT YOU'RE RIGHT. NO IDEA WHAT IT COULD MEAN.
CEDA
AR
YEAH, WAY TO GO, B CELL!
KEEP GOING!!
SLOSH
SPLASH
SPLASH
SLOSH
ポタ DRIP
ピコ DIT
ピコ DIT
TICK キリ
キリ キリ
TICK TICK
IgE
IgE
637
ピコ DIT
ピコ DIT
IgE
852
WHA?!
WHAT'S WITH THESE HUGE USAGE NUMBERS FOR THE IgE?!

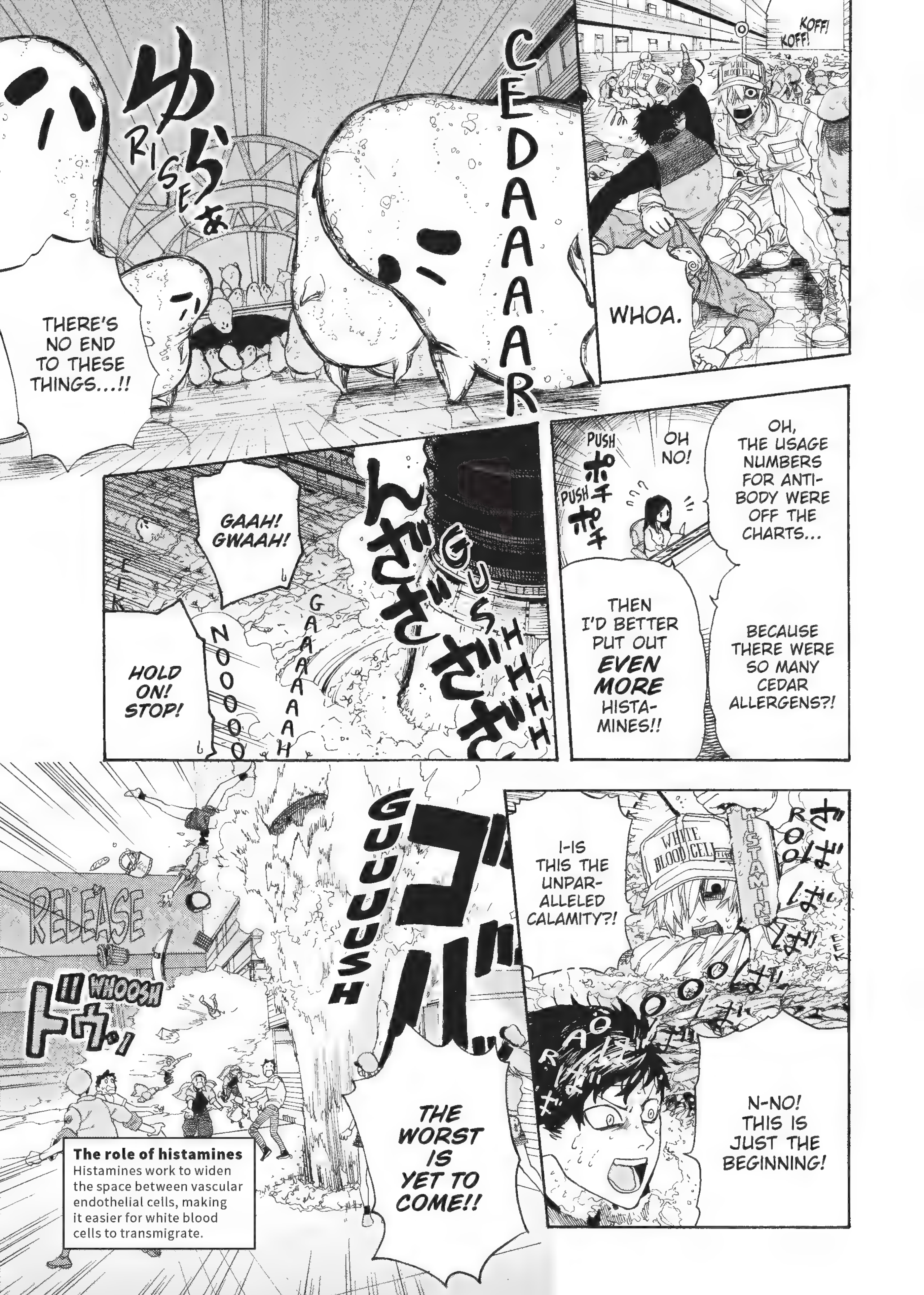

I'VE NEVER SEEN NUMBERS LIKE THESE...!
?
?
RUSTLE
RUSTLE
GENES
CELL ESSENTIALS
UMM...
BUT THE MANUAL SAYS TO PRODUCE HISTAMINES CORRESPONDING TO THE IgE VALUES...
HISTAMINE CARE MANUAL
CLICK
CLICK
CLICK
SO... I GUESS THIS MUCH?
SO YOU THINK THAT OVERUSING IgE IS BAD...FOR WHATEVER REASON?
WHITE BLOOD CELL
I THINK SO.
HEY, B CELL.
SPLISH
SPLASH
A WHITE BLOOD CELL.
MAYBE YOU DON'T WANT TO GO OVERBOARD WITH THAT THING.
OR SOMETHING...
HUH?
B

Mast Cell
Releases chemicals such as histamines and leukotrienes in response to stimulus from excessive production of IgE. The "mast" in mast cell comes from the German word for "fattening": *Mastzellen.*

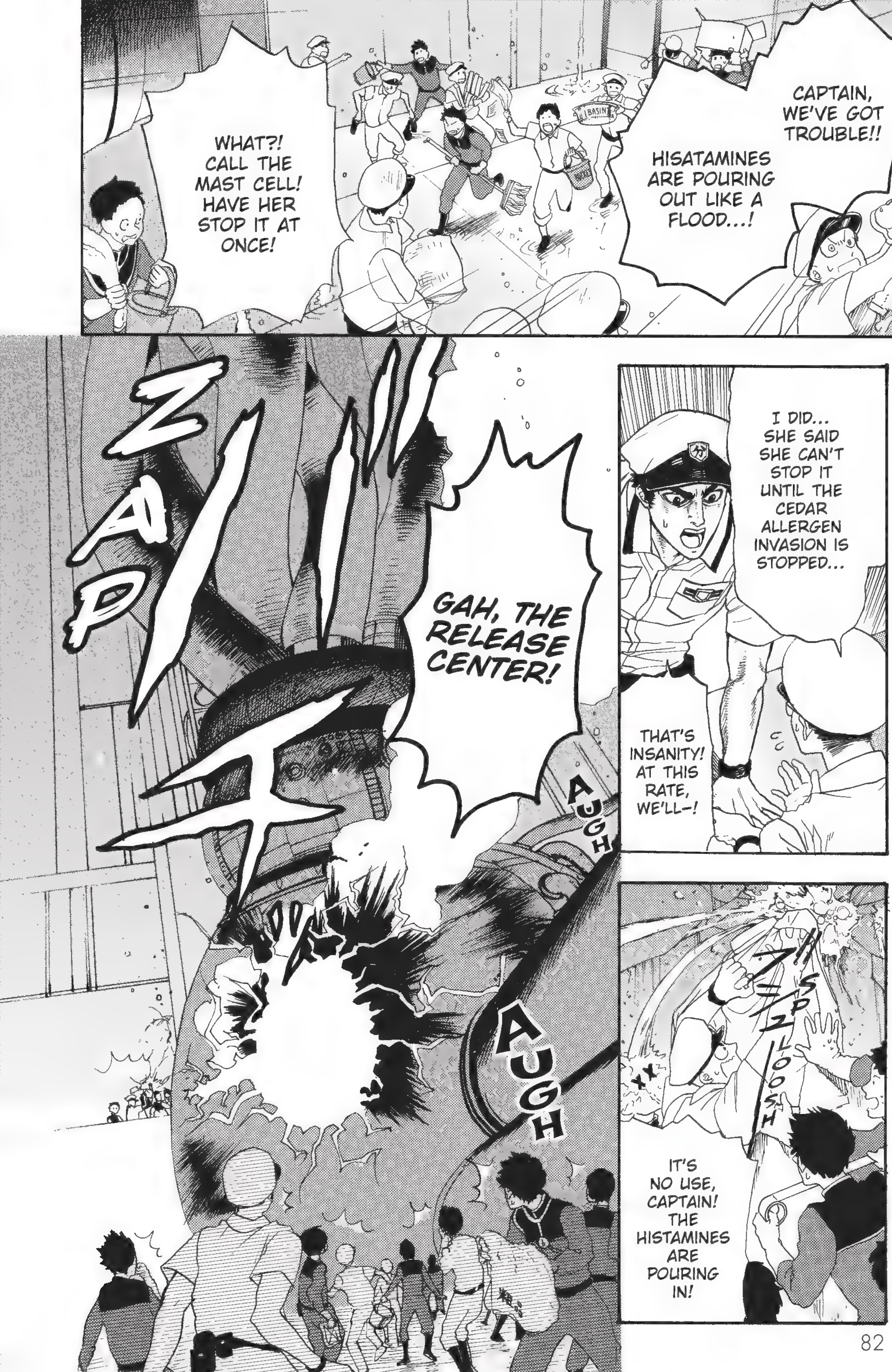

WHAT? A LEGEND?
YUP.
HA HA HA. I'M SURE IT'S FINE!
SOUNDS SILLY.
WELL, IT'S ALL OVER ANYWAY. SEE...
THEY'RE ABOUT TO RELEASE THE *HISTAMINES!*
THAT'S GOING TO BLOCK THE ALLERGENS FROM COMING IN!
ウィーン
VWEEM
WHOA
HUH.
CELL
HM? WHY'S IT RETRACTING?
ウィーン
VWEEM
CHANGING THE NOZZLE, PROBABLY.
ウィーン
VWEEEEM
BLOOD CELL
...WHA?

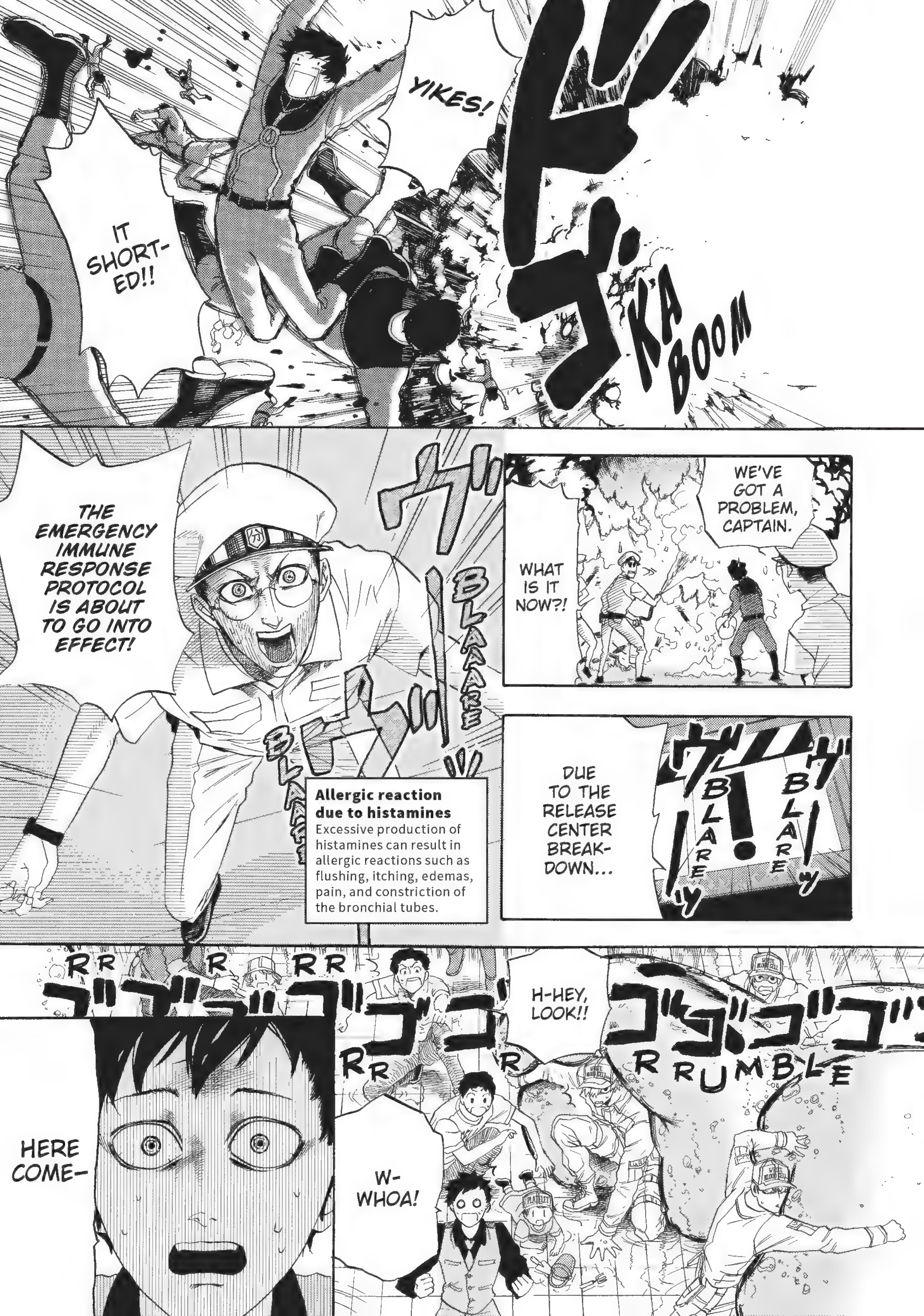

SPLOOOSH
GWAAAH!!!
OH! COULD THIS BE THE MASSIVE FLOODS OF LEGEND?!
SWOOSH
COULD BE... GURBLE... GURBLE...

Histamines
A chemical mediator released by mast cells when they recognize foreign substances or damage to tissues.

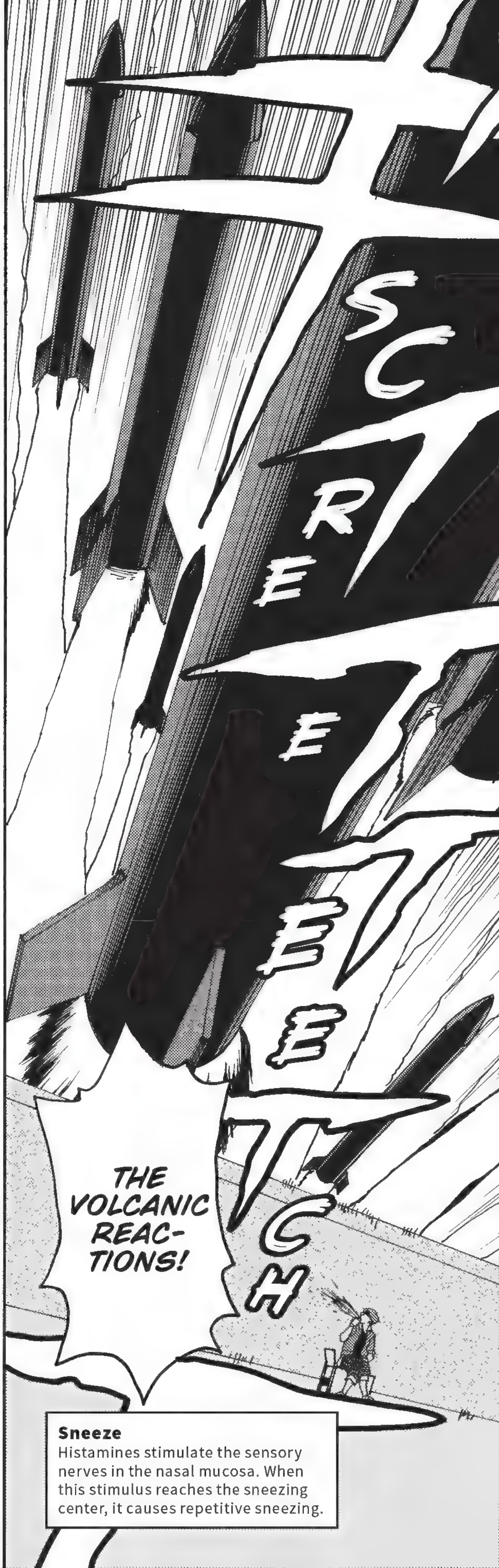

KOFF!
KOFF!
WHITE BLOOD CELL
WHOA.
CEDAAAAAR
ゆらぁ
RISE
THERE'S NO END TO THESE THINGS...!!
OH, THE USAGE NUMBERS FOR ANTIBODY WERE OFF THE CHARTS...
BECAUSE THERE WERE SO MANY CEDAR ALLERGENS?!
OH NO!
PUSH ポチ
PUSH ポチ
THEN I'D BETTER PUT OUT EVEN MORE HISTAMINES!!
んざざざ
GUSHHHHH
GAAH! GWAAH!
EEK
NOOOOOO
GAAAAAAAH
HOLD ON! STOP!
ざばばば
ROOOOOO
HISTAMINE
WHITE BLOOD CELL
EEK
I-IS THIS THE UNPARALLELED CALAMITY?!
N-NO! THIS IS JUST THE BEGINNING!
ゴバ
GUUUUUSH
THE WORST IS YET TO COME!!
RELEASE
ドウ
WHOOSH

The role of histamines
Histamines work to widen the space between vascular endothelial cells, making it easier for white blood cells to transmigrate.

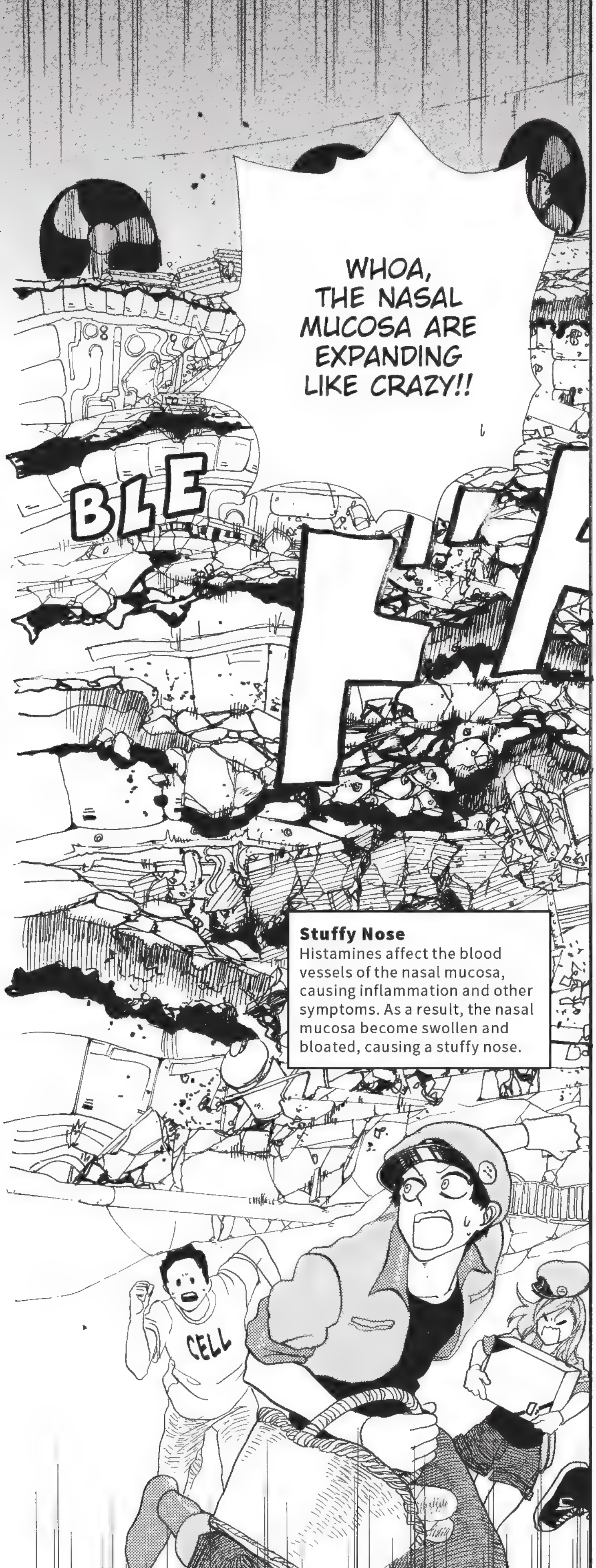

CAPTAIN, WE'VE GOT TROUBLE!!
HISATAMINES ARE POURING OUT LIKE A FLOOD...!
BASIN
WHAT?! CALL THE MAST CELL! HAVE HER STOP IT AT ONCE!
I DID... SHE SAID SHE CAN'T STOP IT UNTIL THE CEDAR ALLERGEN INVASION IS STOPPED...
THAT'S INSANITY! AT THIS RATE, WE'LL-!
GAH, THE RELEASE CENTER!
ZAP
AUGH
AUGH
SPLOOSH
IT'S NO USE, CAPTAIN! THE HISTAMINES ARE POURING IN!


ドゴ
KA BOOM
YIKES!
IT SHORTED!!
WE'VE GOT A PROBLEM, CAPTAIN.
WHAT IS IT NOW?!
DUE TO THE RELEASE CENTER BREAKDOWN...
ヴー
BLARE
ヴー
BLARE
!
ヴー
BLAAARE
THE EMERGENCY IMMUNE RESPONSE PROTOCOL IS ABOUT TO GO INTO EFFECT!
BLAAARE
ゴゴゴゴ
RRR RUMBLE
H-HEY, LOOK!!
ゴゴゴゴ
RR RR RR
W-WHOA!
HERE COME-

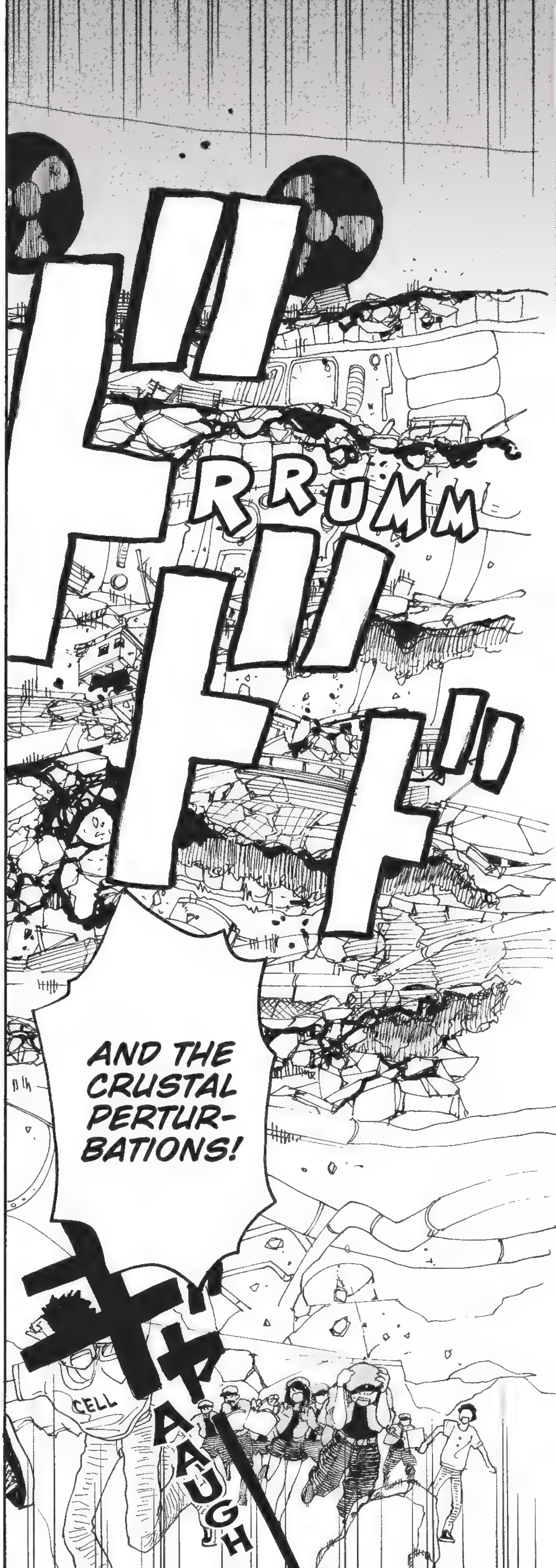
Allergic reaction due to histamines
Excessive production of histamines can result in allergic reactions such as flushing, itching, edemas, pain, and constriction of the bronchial tubes.

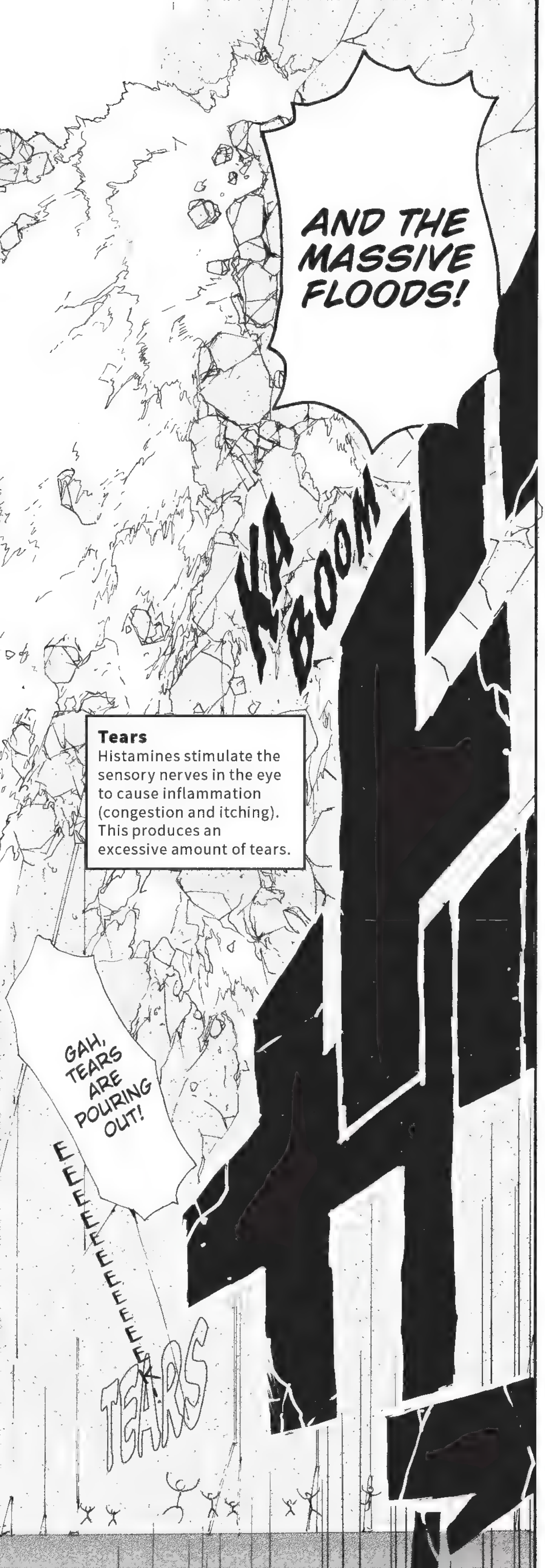

SCREEEEECH
THE VOLCANIC REACTIONS!

Sneeze
Histamines stimulate the sensory nerves in the nasal mucosa. When this stimulus reaches the sneezing center, it causes repetitive sneezing.

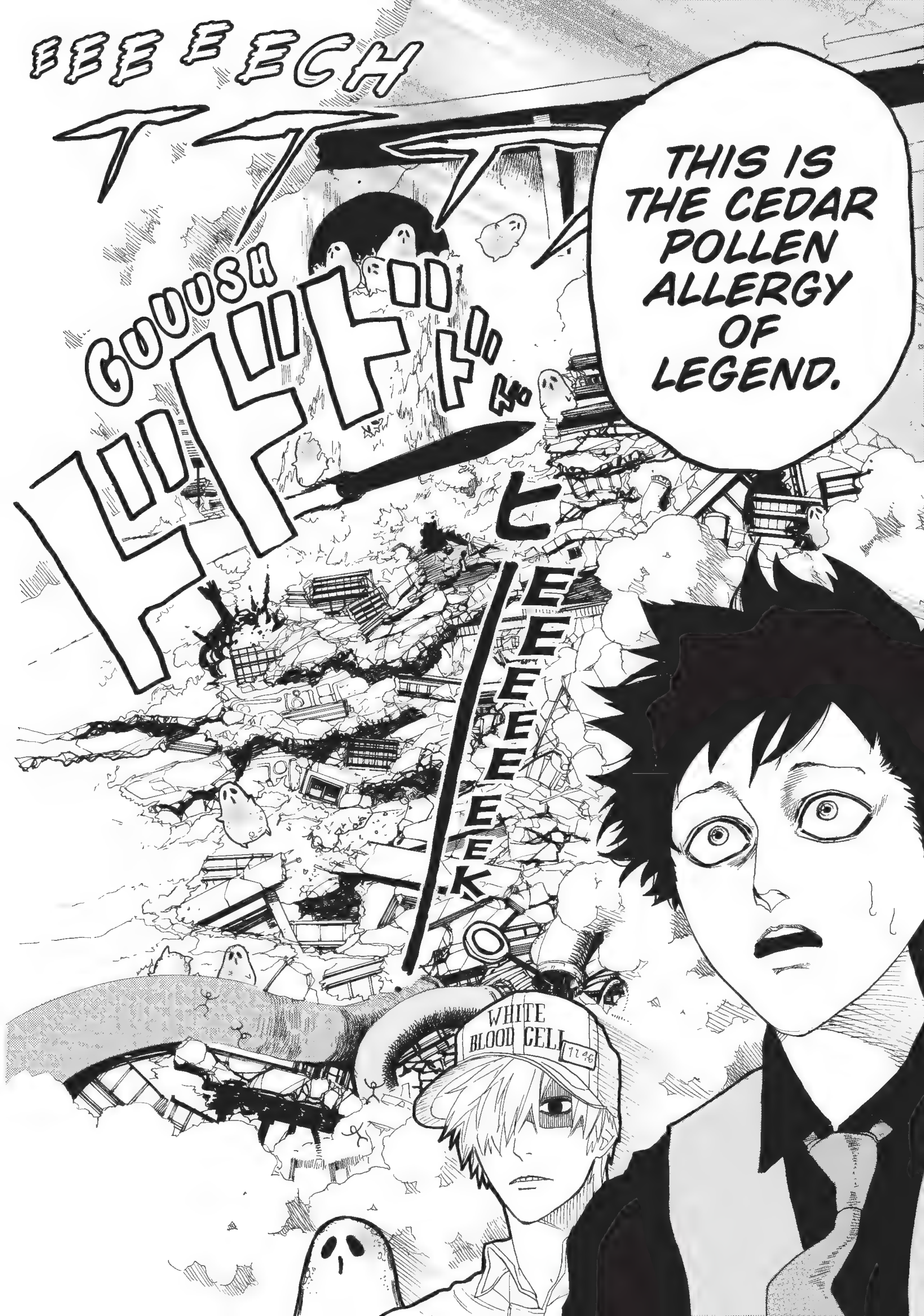

WHOA, THE NASAL MUCOSA ARE EXPANDING LIKE CRAZY!!
BLE
CELL

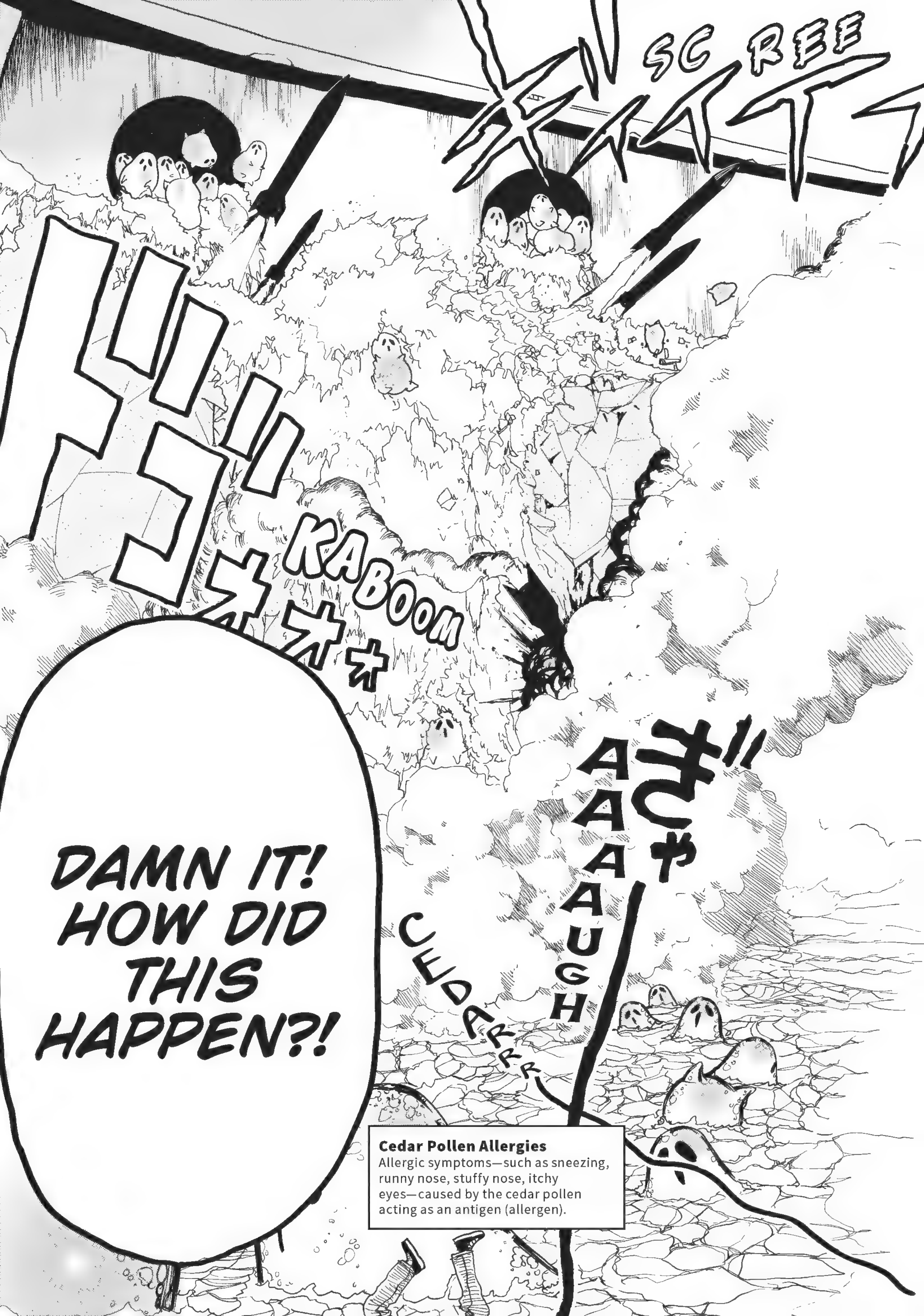
Stuffy Nose
Histamines affect the blood vessels of the nasal mucosa, causing inflammation and other symptoms. As a result, the nasal mucosa become swollen and bloated, causing a stuffy nose.


ドドドド
RRUMM
AND THE CRUSTAL PERTURBATIONS!
CELL
ギャ
AAUGH

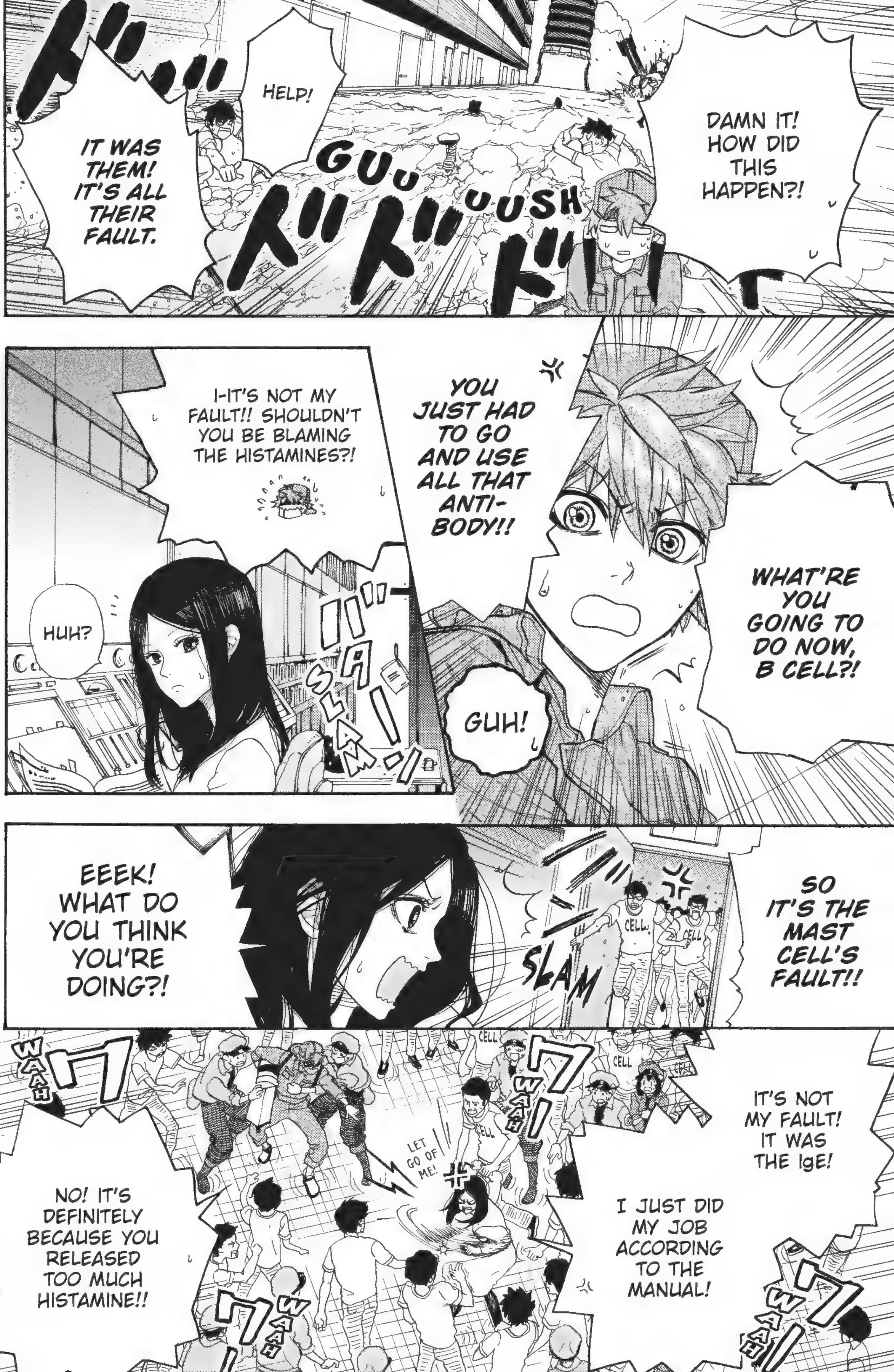

AND THE MASSIVE FLOODS!
KA BOOM
GAH, TEARS ARE POURING OUT!
EEEEEEEEEEEK
TEARS

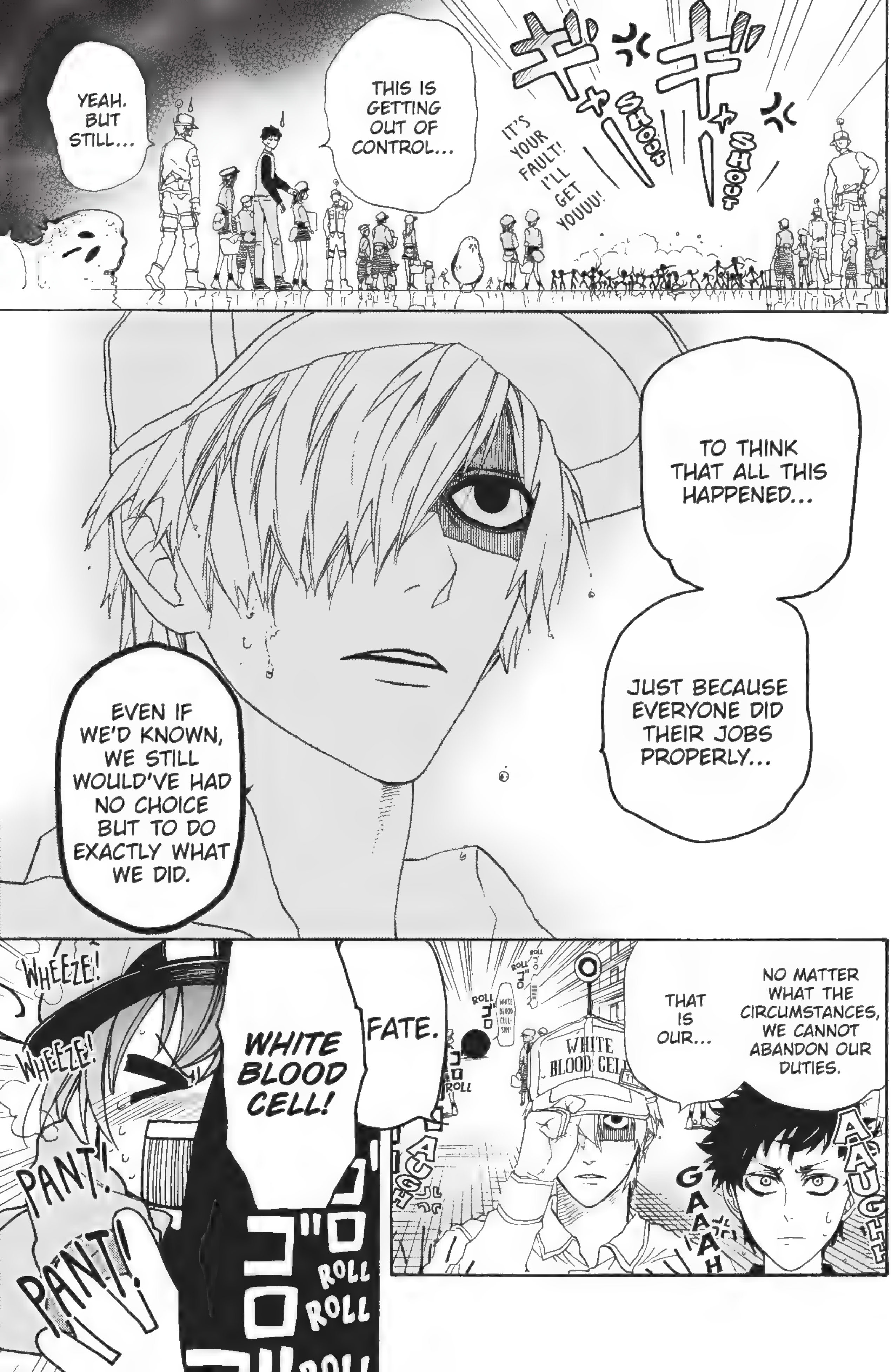
Tears
Histamines stimulate the sensory nerves in the eye to cause inflammation (congestion and itching). This produces an excessive amount of tears.

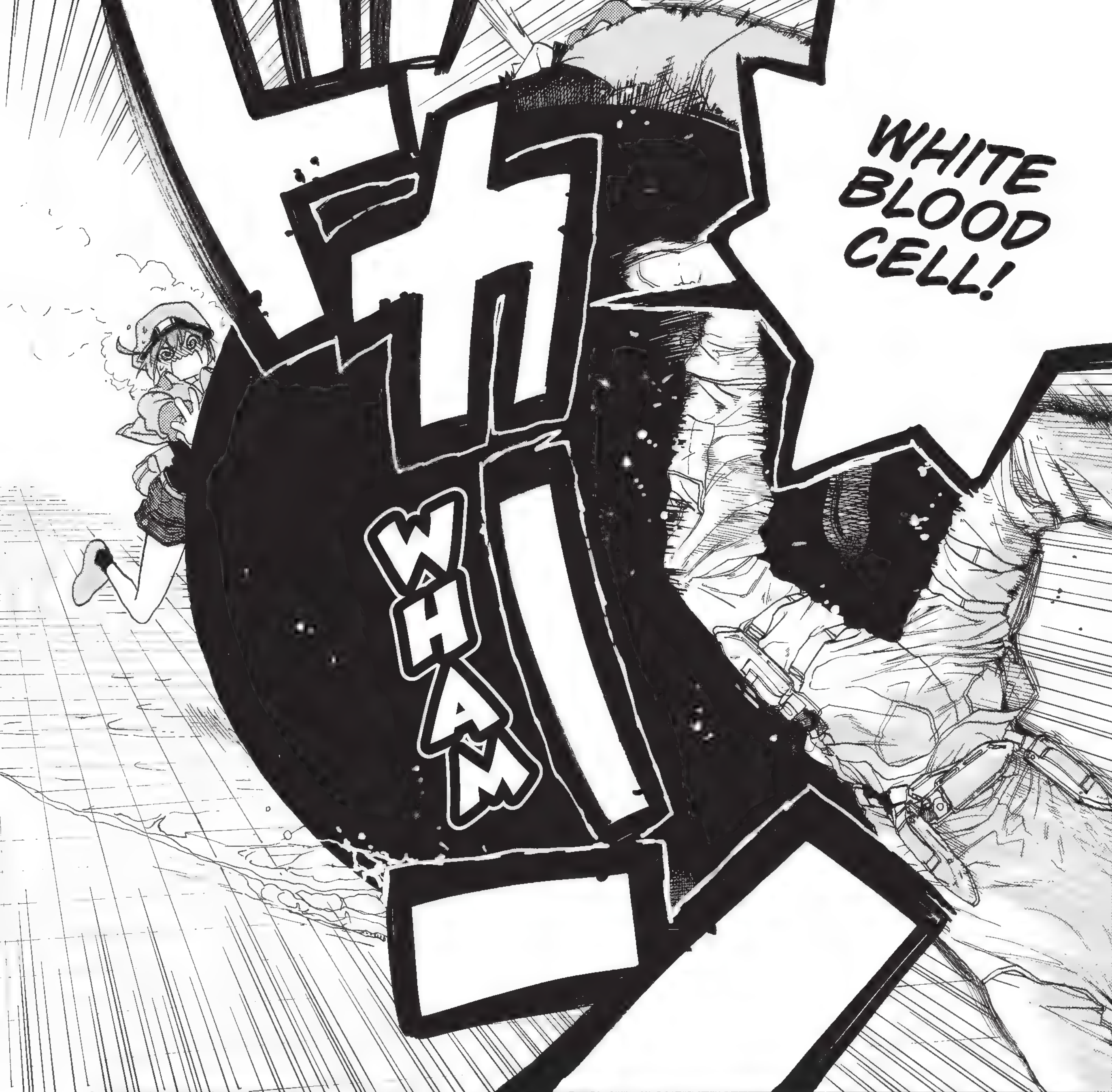

THIS IS THE CEDAR POLLEN ALLERGY OF LEGEND.
EEE E ECH
GUUUSH
EEEEEEEK
WHITE BLOOD CELL
1146

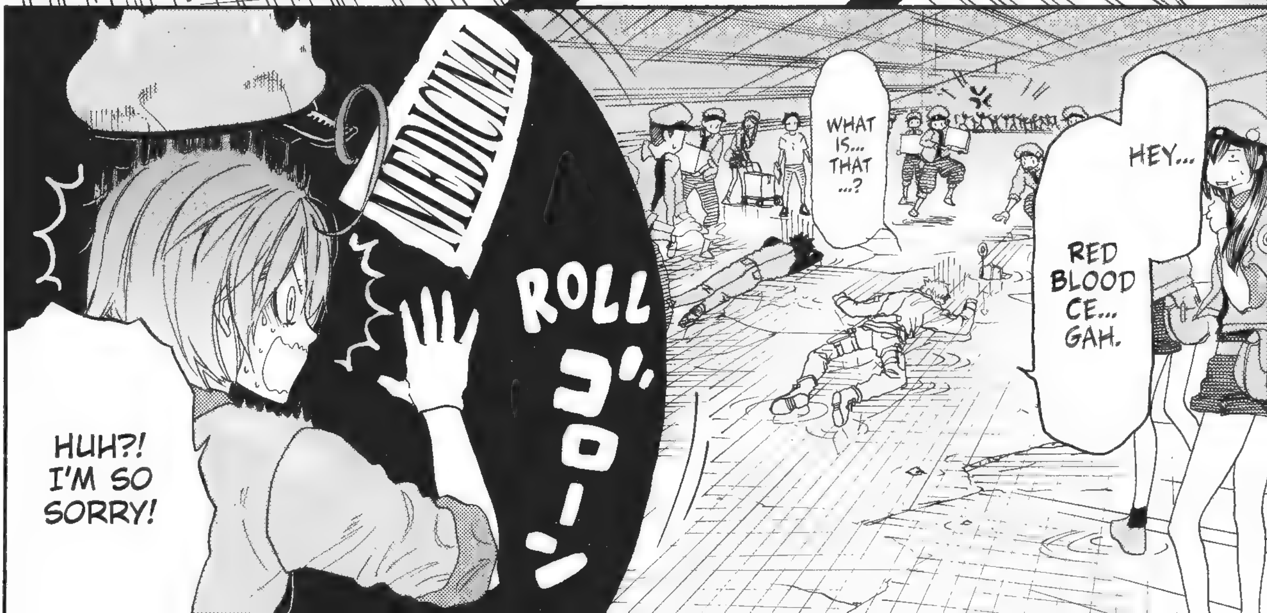

SC REE
ドゴォォォ
KABOOM
ぎゃ
AAAAAUGH
CEDARRRR
DAMN IT! HOW DID THIS HAPPEN?!

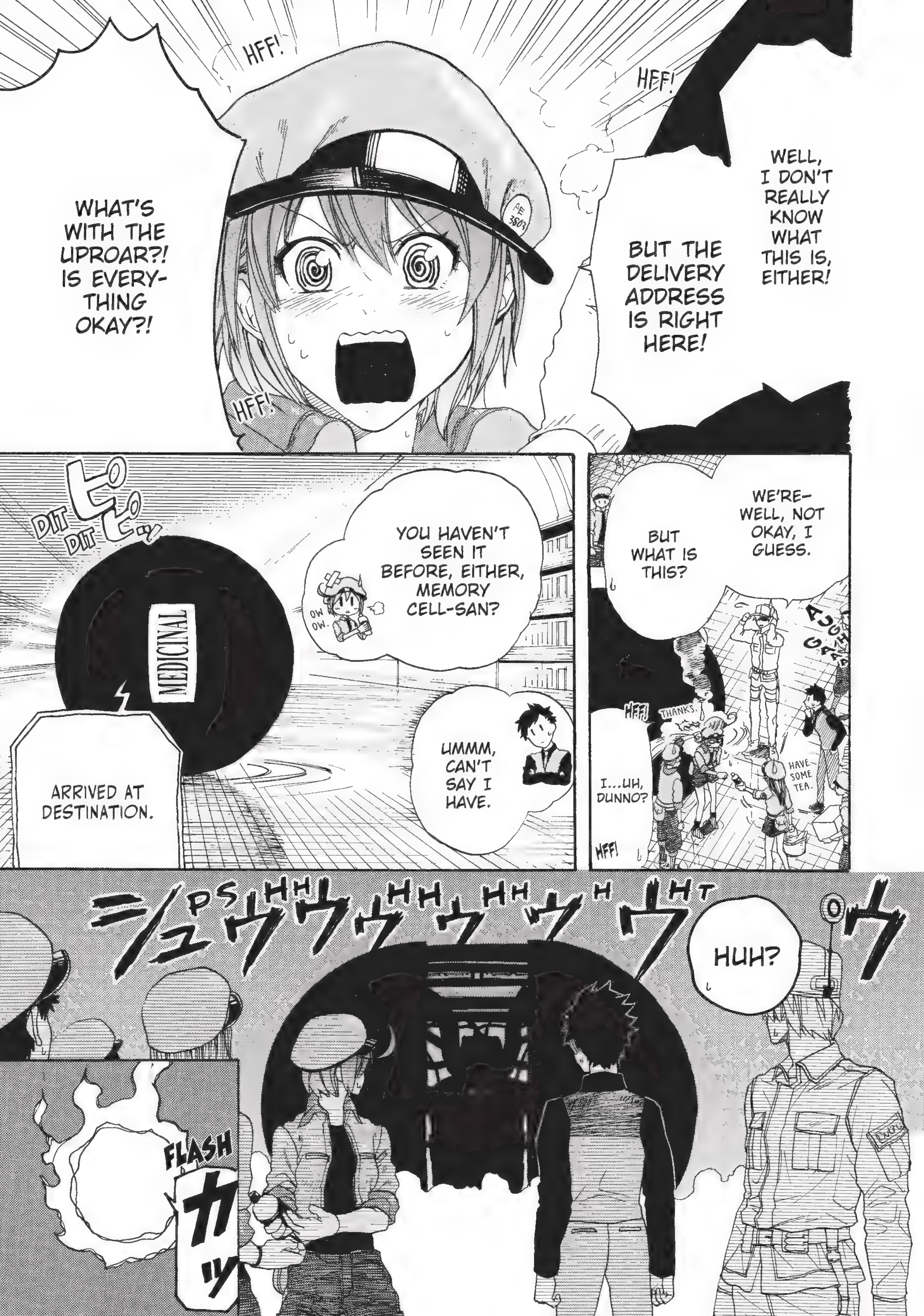
Cedar Pollen Allergies
Allergic symptoms—such as sneezing, runny nose, stuffy nose, itchy eyes—caused by the cedar pollen acting as an antigen (allergen).

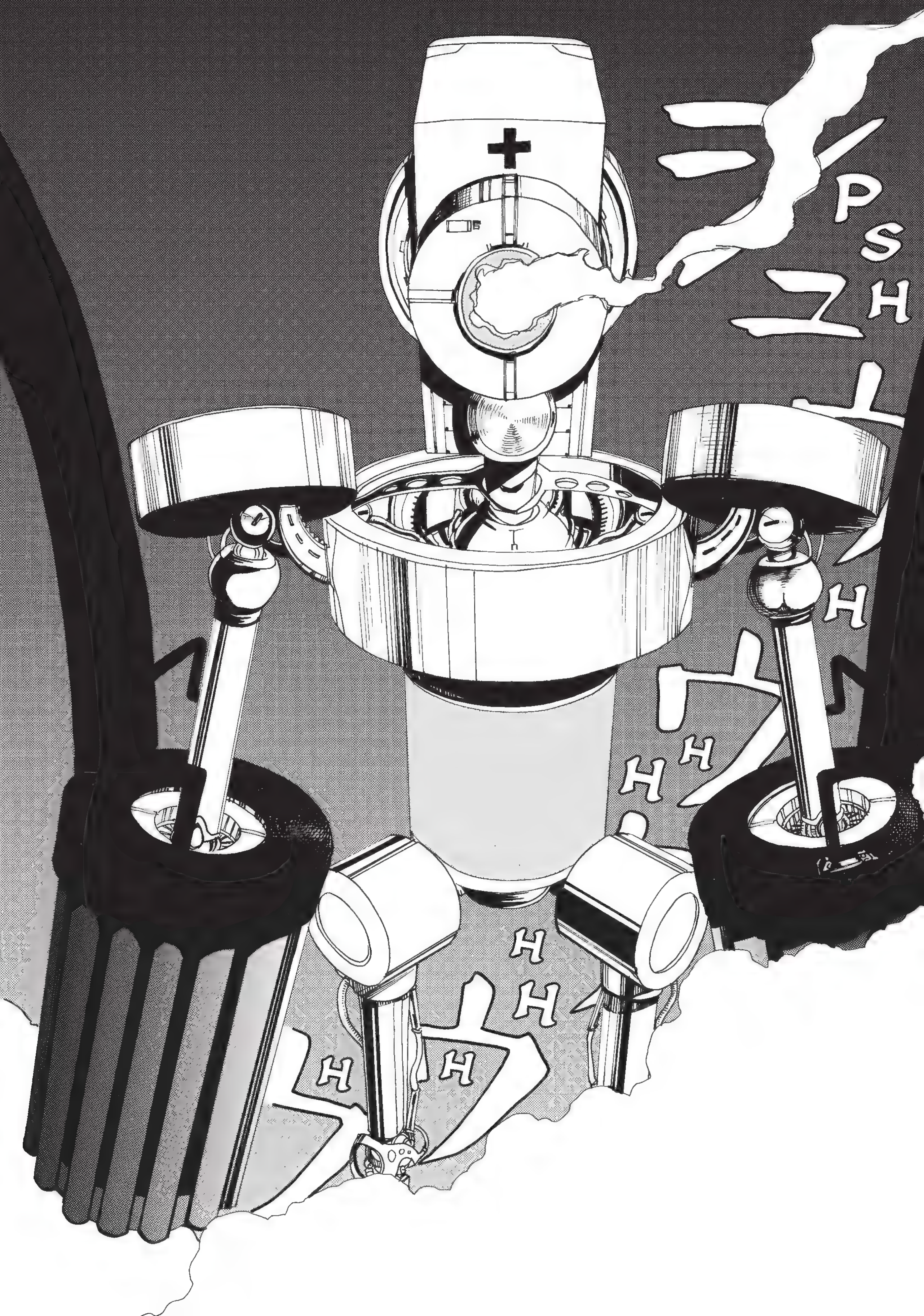

DAMN IT! HOW DID THIS HAPPEN?!
GUUUUUSH
HELP!
IT WAS THEM! IT'S ALL THEIR FAULT.
YOU JUST HAD TO GO AND USE ALL THAT ANTIBODY!!
WHAT'RE YOU GOING TO DO NOW, B CELL?!
GUH!
I-IT'S NOT MY FAULT!! SHOULDN'T YOU BE BLAMING THE HISTAMINES?!
HUH?
SLAM
SO IT'S THE MAST CELL'S FAULT!!
CELL
CELL
SLAM
EEEK! WHAT DO YOU THINK YOU'RE DOING?!
WAAH
IT'S NOT MY FAULT! IT WAS THE IgE!
I JUST DID MY JOB ACCORDING TO THE MANUAL!
CELL
CELL
CELL
WAAH
LET GO OF ME!
NO! IT'S DEFINITELY BECAUSE YOU RELEASED TOO MUCH HISTAMINE!!
WAAH
WAAH

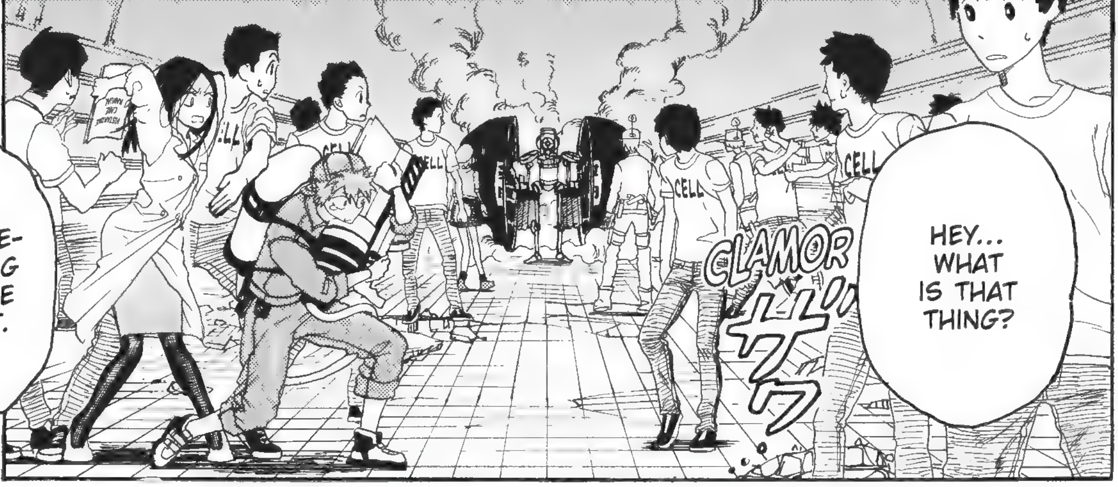

ギャ SHOOT
ギ SHOOT
IT'S YOUR FAULT! I'LL GET YOUUU!
THIS IS GETTING OUT OF CONTROL...
YEAH. BUT STILL...
TO THINK THAT ALL THIS HAPPENED...
JUST BECAUSE EVERYONE DID THEIR JOBS PROPERLY...
EVEN IF WE'D KNOWN, WE STILL WOULD'VE HAD NO CHOICE BUT TO DO EXACTLY WHAT WE DID.
NO MATTER WHAT THE CIRCUMSTANCES, WE CANNOT ABANDON OUR DUTIES.
THAT IS OUR...
AAUGH
GAAAH
AAUGH
WHITE BLOOD CELL
ROLL ゴロ
ROLL ゴロ
WHITE BLOOD CELL-SAN!
ROLL
ゴロ ROLL
FATE.
WHITE BLOOD CELL!
ゴロ ROLL
ROLL
ROLL
WHEEZE!
WHEEZE!
PANT!
PANT!

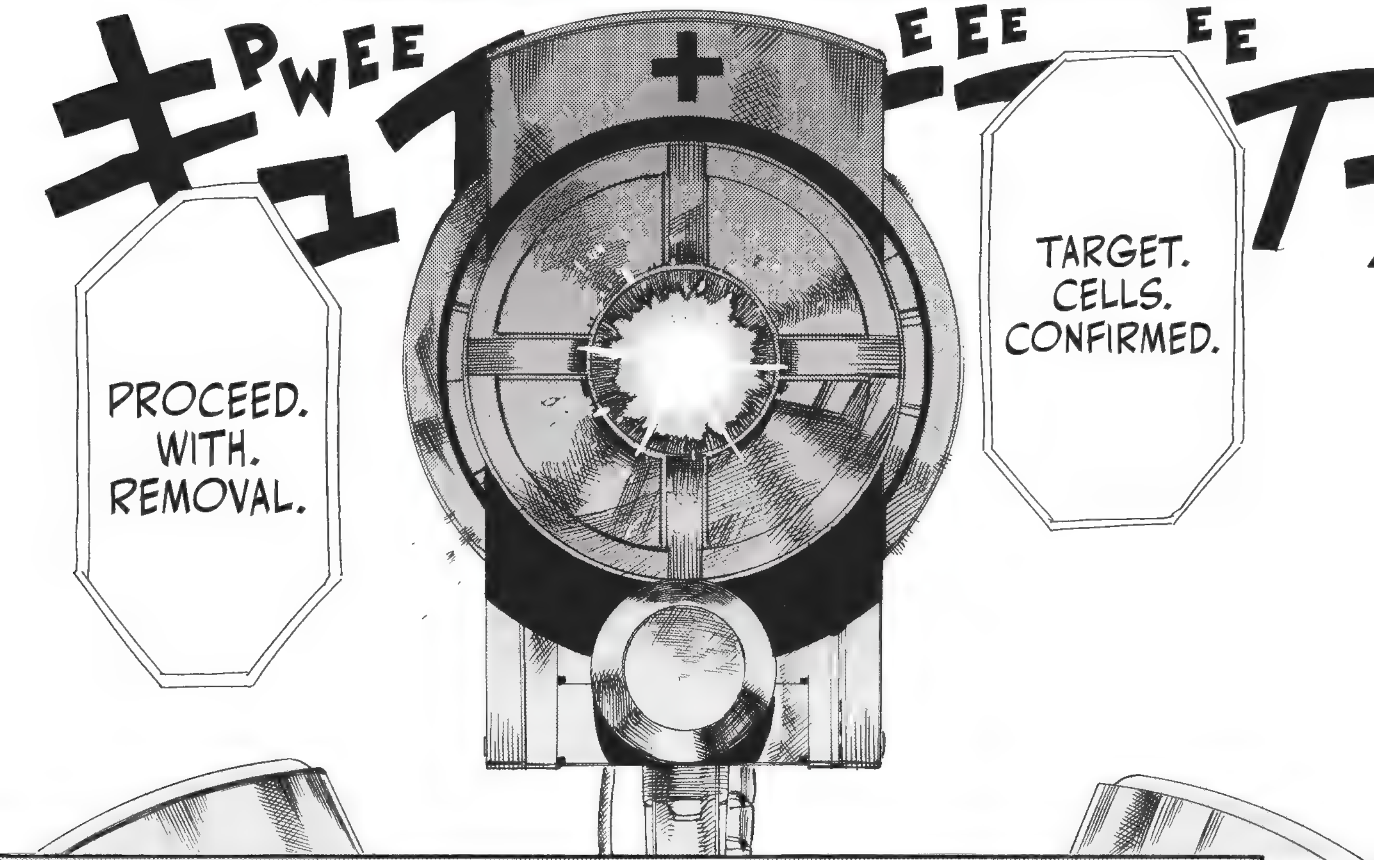

WHITE BLOOD CELL!
ドカー
WHAM

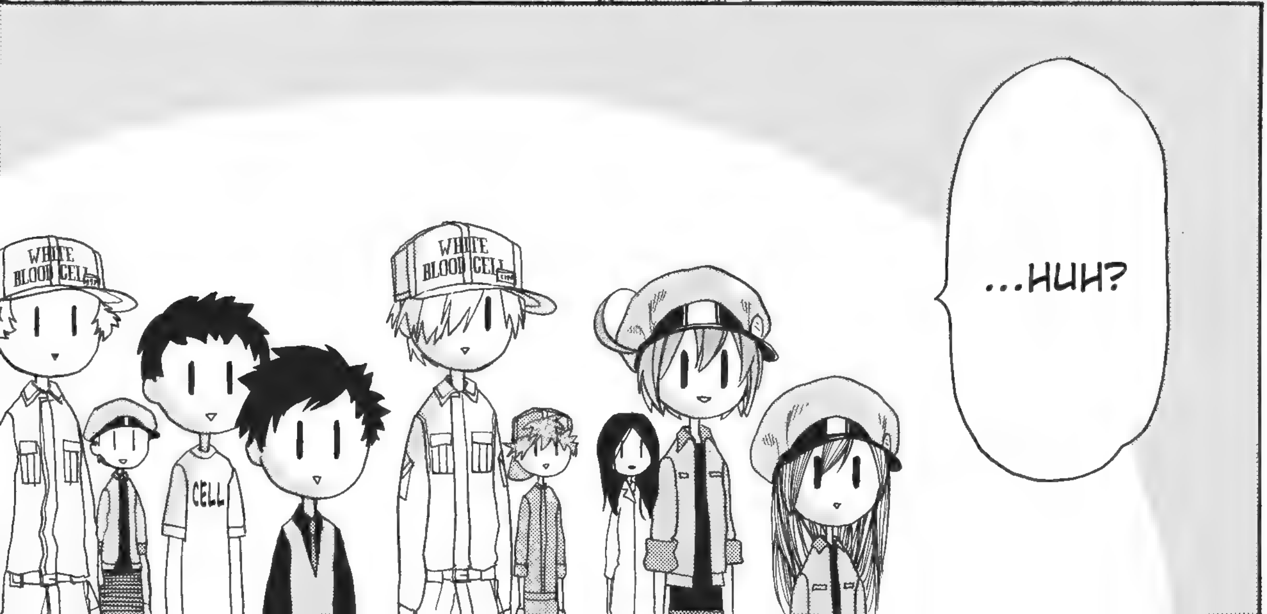

HEY...
RED BLOOD CE... GAH.
WHAT IS... THAT ...?
MEDICINAL
ROLL
ゴローン
HUH?! I'M SO SORRY!

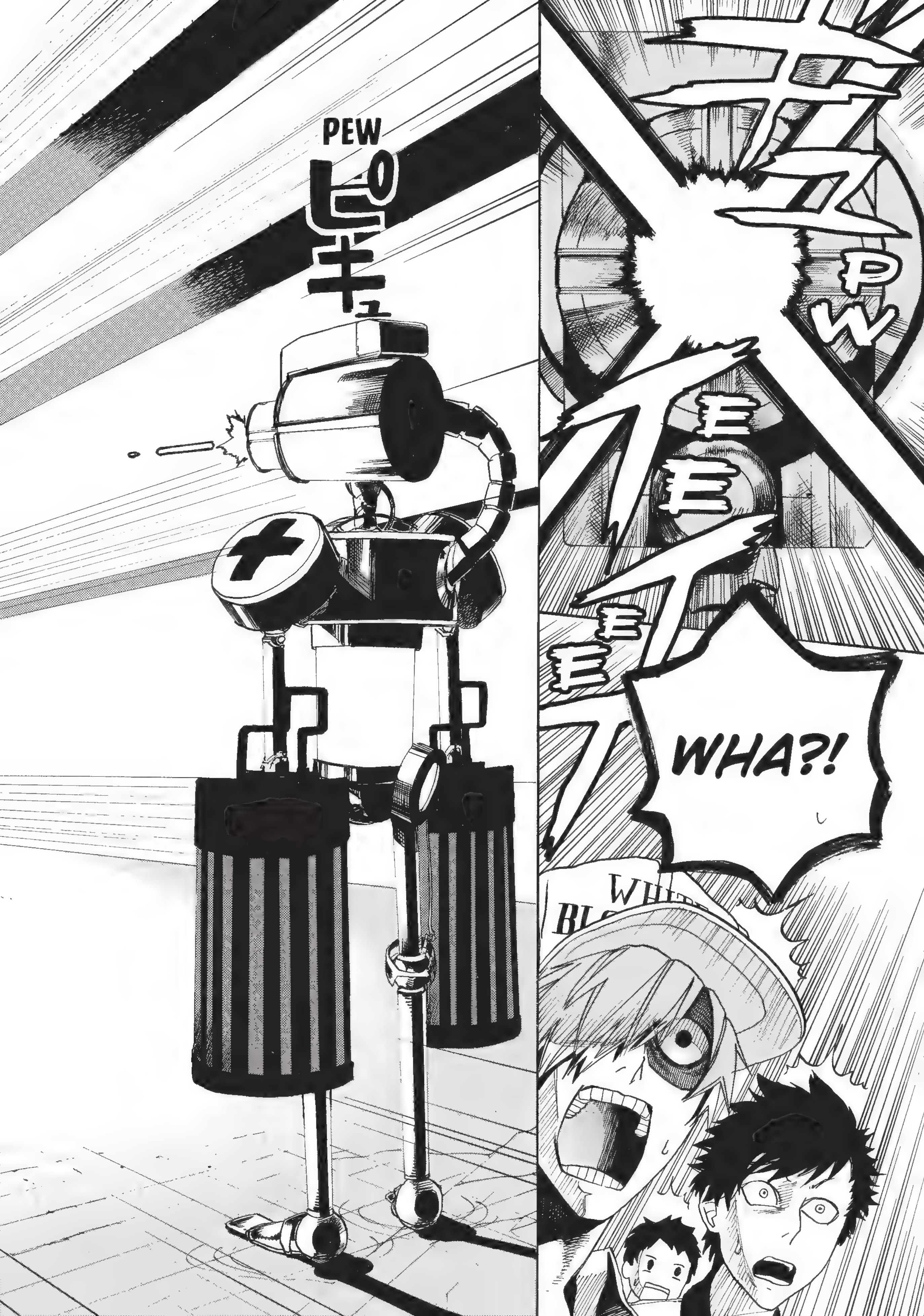

HFF!
HFF!
WELL, I DON'T REALLY KNOW WHAT THIS IS, EITHER!
BUT THE DELIVERY ADDRESS IS RIGHT HERE!
WHAT'S WITH THE UPROAR?! IS EVERYTHING OKAY?!
HFF!
WE'RE—WELL, NOT OKAY, I GUESS.
BUT WHAT IS THIS?
AJUGH GAFF
THANKS.
HFF!
HAVE SOME TEA.
I...UH, DUNNO?
HFF!
YOU HAVEN'T SEEN IT BEFORE, EITHER, MEMORY CELL-SAN?
OW OW.
UMMM, CAN'T SAY I HAVE.
ピピッ
DIT DIT
MEDICINAL
ARRIVED AT DESTINATION.
AE 3803
シュウウウウウウウ
PSHHHHHHHHHT
HUH?
FLASH
カッ

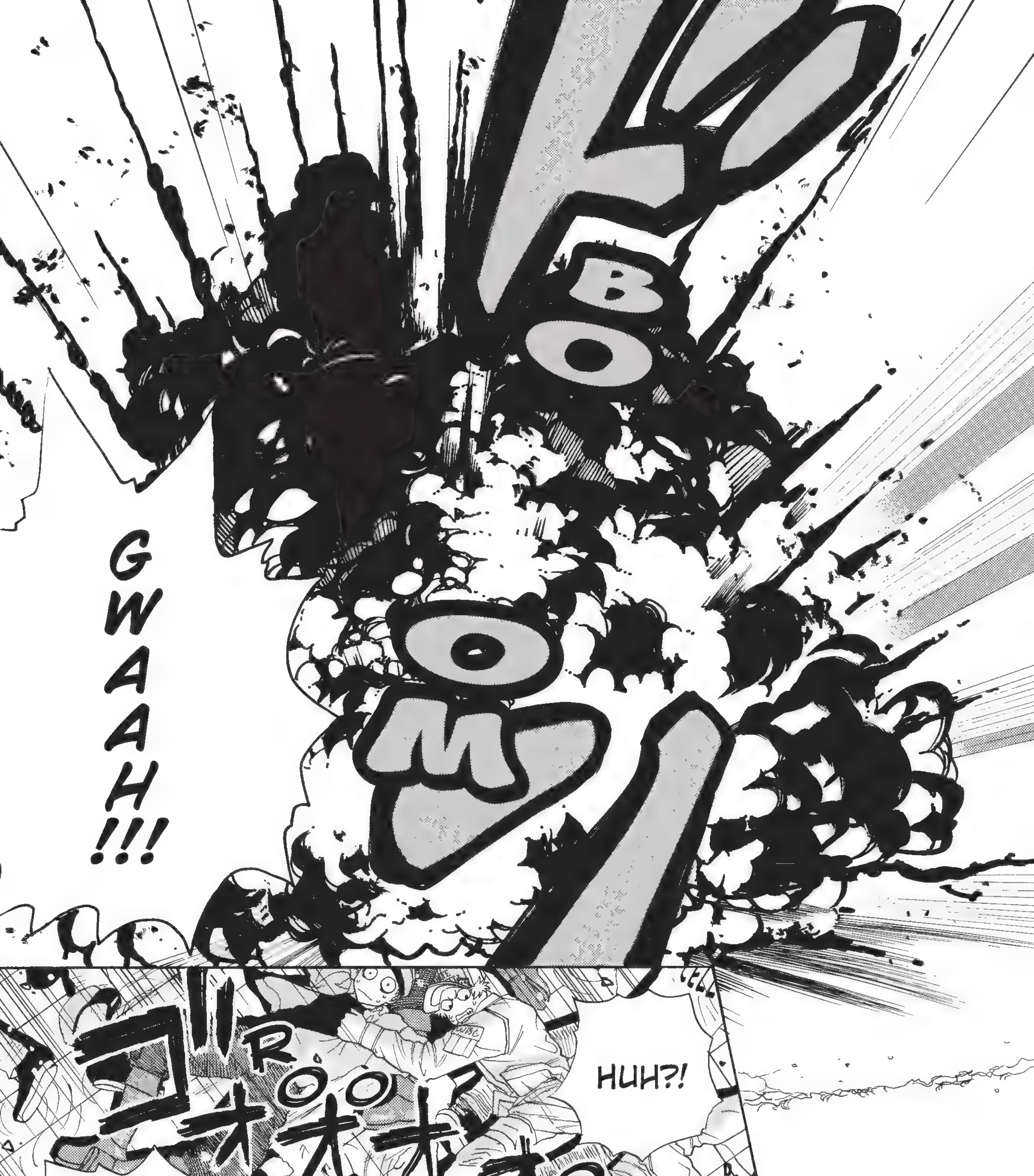

PSH
H
H H
H H
H H

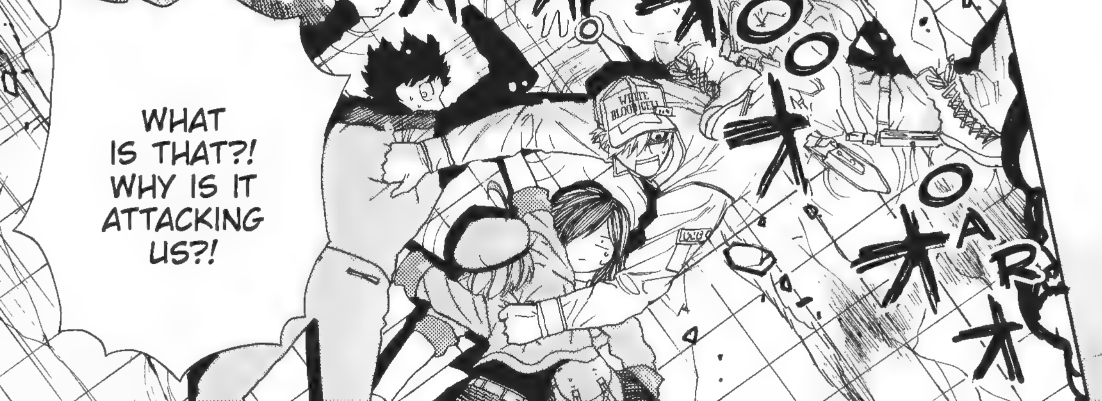

HEY... WHAT IS THAT THING?
CLAMOR
ザワ
SOME-THING CAME OUT.

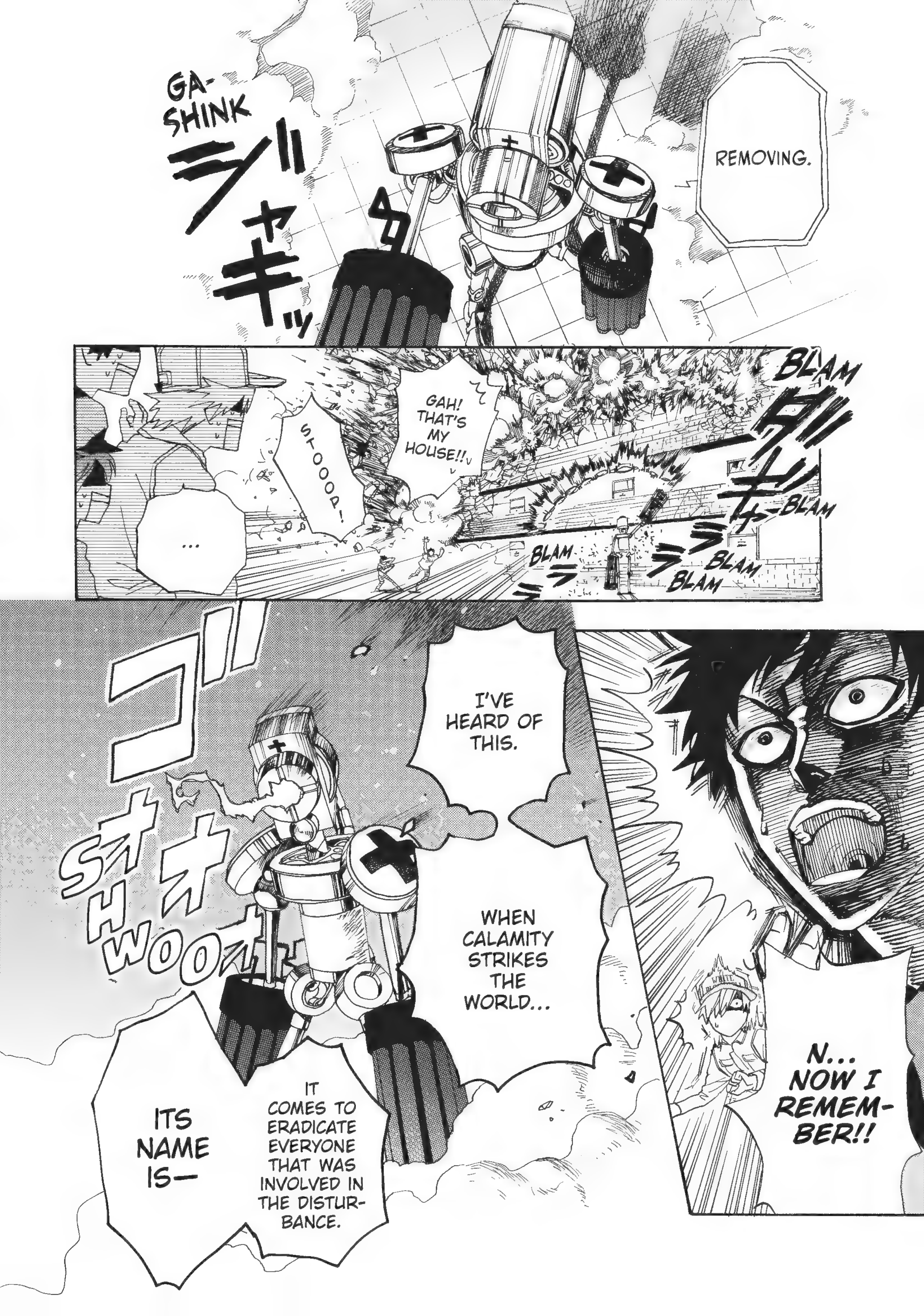

PWEEEEEEE
キュ
TARGET. CELLS. CONFIRMED.
PROCEED. WITH. REMOVAL.

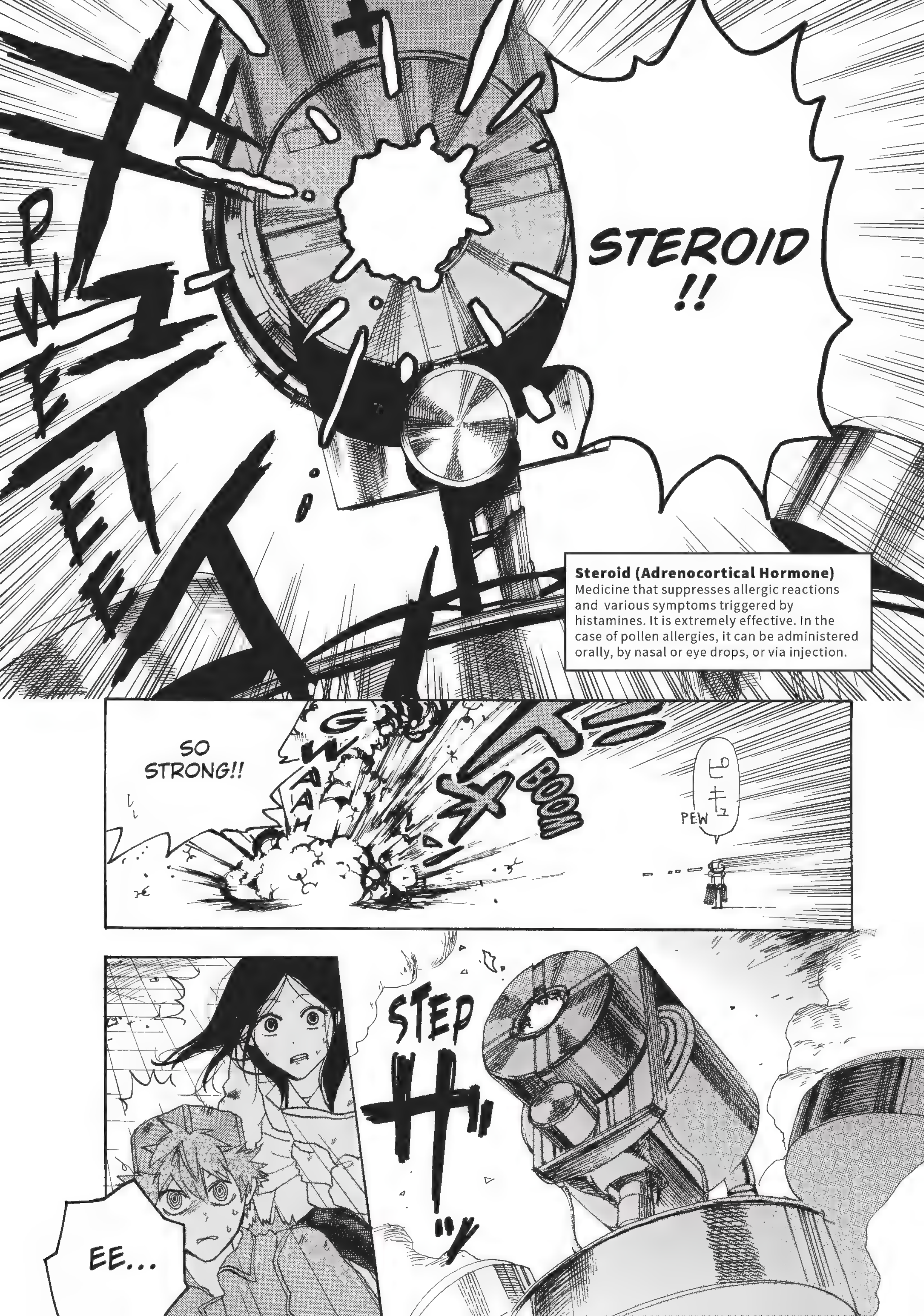

...HUH?
WHITE BLOOD CELL
WHITE BLOOD CELL
CELL


キュイイイ
PW
EEEE
WHA?!
PEW
ピキュ


BOOM
GWAAAH!!!

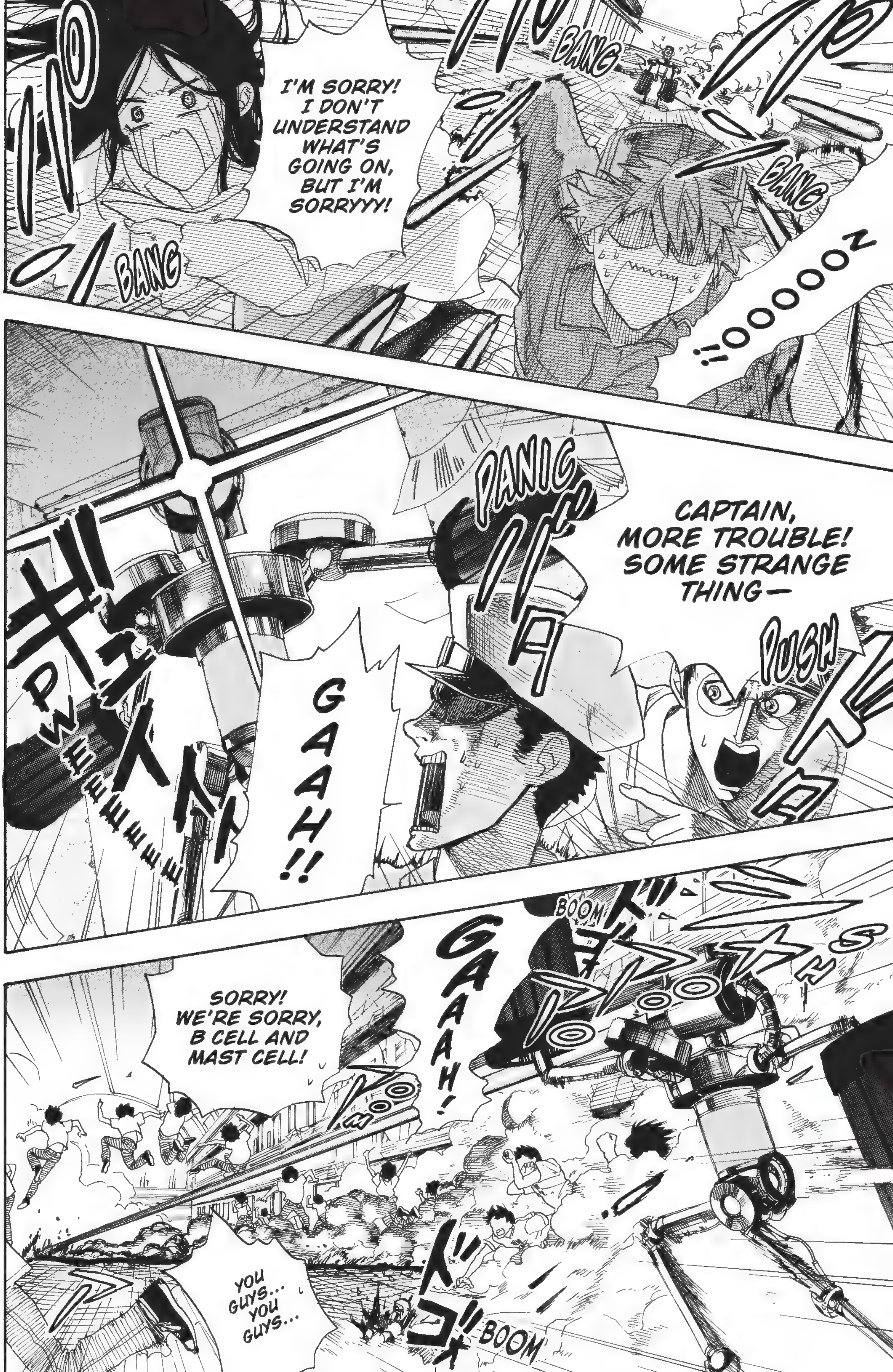

HUH?!
ROOOOOOAR
WHAT IS THAT?! WHY IS IT ATTACKING US?!
WHITE BLOOD CELL

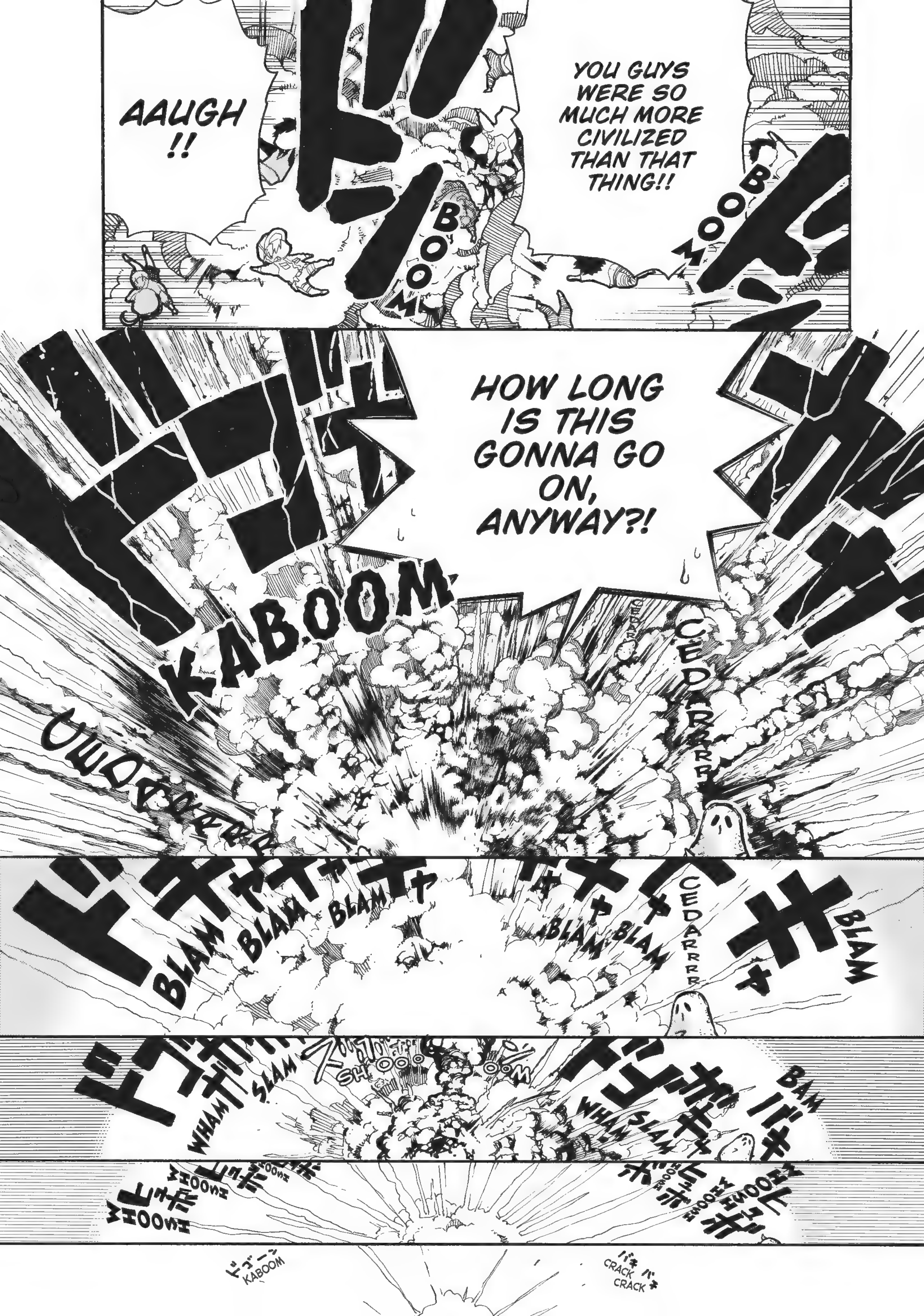

REMOVING.
GA-SHINK
ジャキッ
BLAM
BLAM
BLAM
BLAM
BLAM
GAH! THAT'S MY HOUSE!!
STOOOP!
...
N... NOW I REMEMBER!!
I'VE HEARD OF THIS.
WHEN CALAMITY STRIKES THE WORLD...
IT COMES TO ERADICATE EVERYONE THAT WAS INVOLVED IN THE DISTURBANCE.
ITS NAME IS—
ゴオオオオ
SHWOO

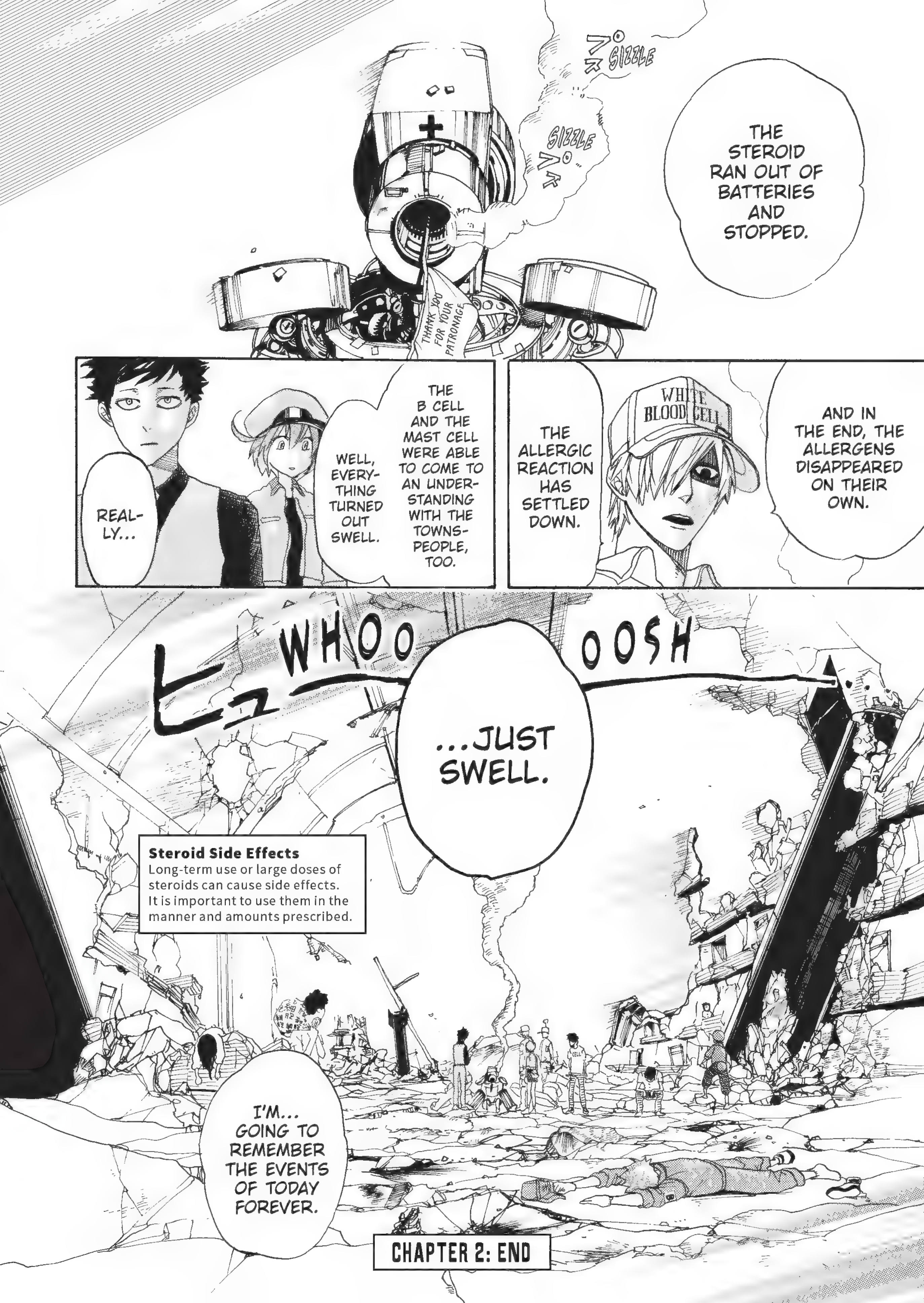


Steroid (Adrenocortical Hormone)
Medicine that suppresses allergic reactions and various symptoms triggered by histamines. It is extremely effective. In the case of pollen allergies, it can be administered orally, by nasal or eye drops, or via injection.

STEROID !!
PWEEE
ピキュ
PEW
BOOM
GWAAAH
SO STRONG!!
STEP
EE...


BANG
BANG
BANG
I'M SORRY! I DON'T UNDERSTAND WHAT'S GOING ON, BUT I'M SORRYYY!
BANG
NOOOOOO!!
CAPTAIN, MORE TROUBLE! SOME STRANGE THING—
PUSH
PANIC
GAAAH!!
PWEEEEEEEEE
SH
BOOM
GAAAAH!
SORRY! WE'RE SORRY, B CELL AND MAST CELL!
YOU GUYS... YOU GUYS...
BOOM

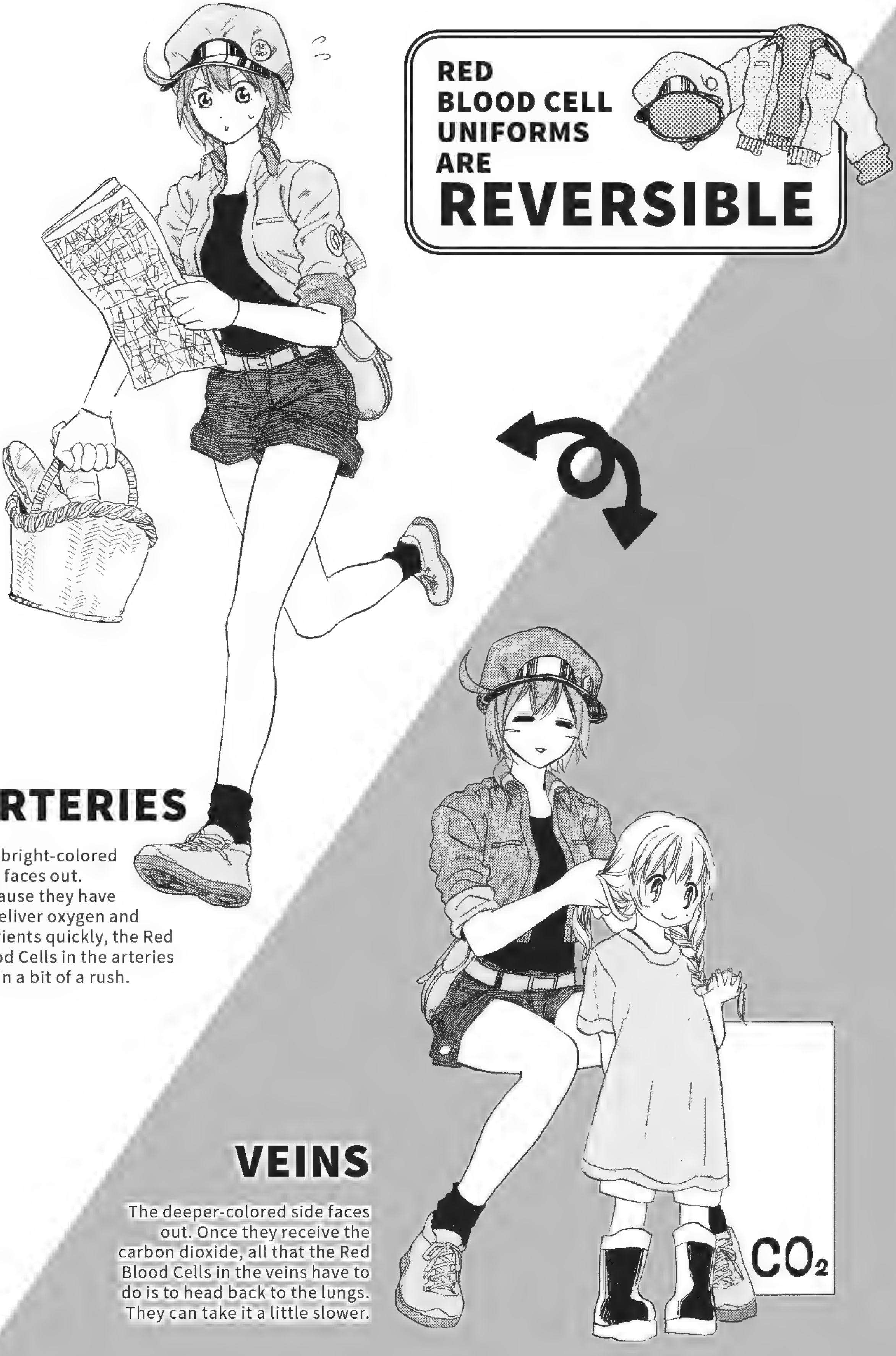

YOU GUYS WERE SO MUCH MORE CIVILIZED THAN THAT THING!!
BOOM
BOOM
AAUGH!!
HOW LONG IS THIS GONNA GO ON, ANYWAY?!
CEDARRR
CEDARRRR
KABOOM
CEDARRRRR
BLAM
CEDARRRR
BLAM
BLAM
BLAM
BLAM
BLAM
BLAM
BAM
SLAM
WHAM
SHOOOOOOM
SLAM
WHAM
WHOOSH
WHOOSH
WHOOSH
WHOOSH
WHOOSH
WHOOSH
バキバキ
CRACK CRACK
ドゴーン
KABOOM


SIZZLE
SIZZLE
THE STEROID RAN OUT OF BATTERIES AND STOPPED.
THANK YOU FOR YOUR PATRONAGE
AND IN THE END, THE ALLERGENS DISAPPEARED ON THEIR OWN.
WHITE BLOOD CELL
THE ALLERGIC REACTION HAS SETTLED DOWN.
THE B CELL AND THE MAST CELL WERE ABLE TO COME TO AN UNDERSTANDING WITH THE TOWNSPEOPLE, TOO.
WELL, EVERYTHING TURNED OUT SWELL.
REALLY...
ヒュ WHOOOOSH
...JUST SWELL.
I'M... GOING TO REMEMBER THE EVENTS OF TODAY FOREVER.

Steroid Side Effects
Long-term use or large doses of steroids can cause side effects. It is important to use them in the manner and amounts prescribed.

CHAPTER 2: END

RED BLOOD CELL UNIFORMS ARE REVERSIBLE



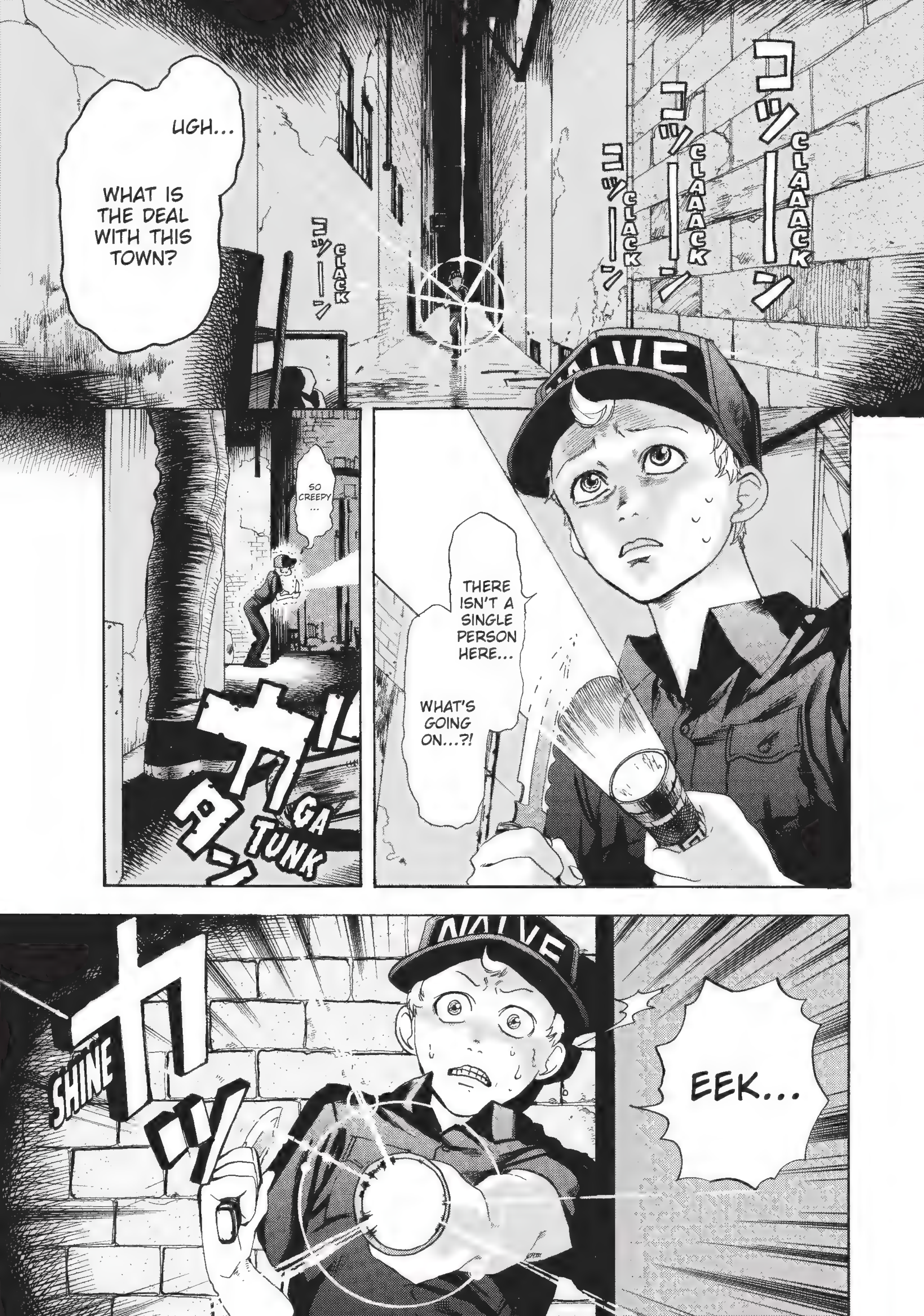
ARTERIES

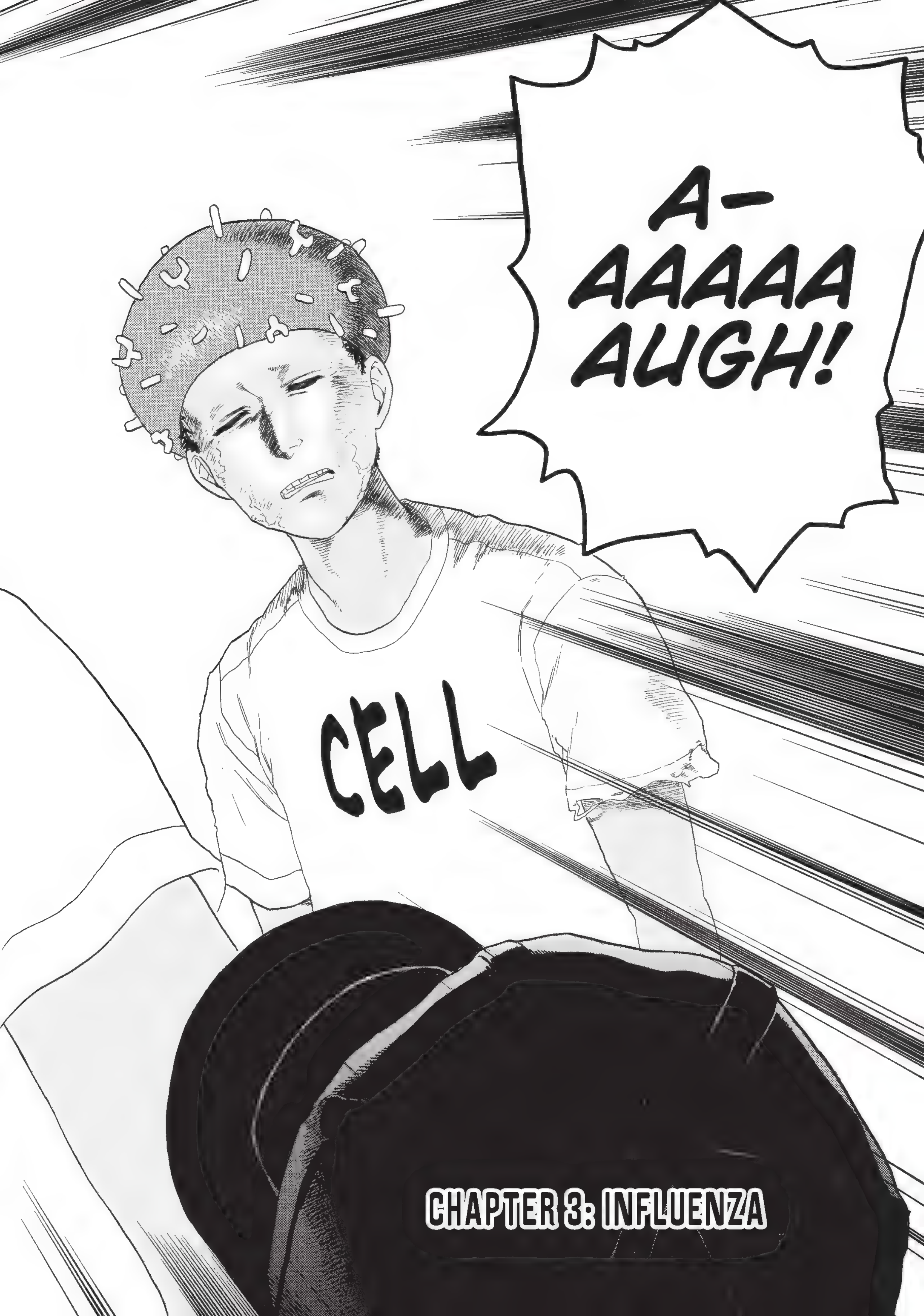
The bright-colored side faces out. Because they have to deliver oxygen and nutrients quickly, the Red Blood Cells in the arteries are in a bit of a rush.

VEINS

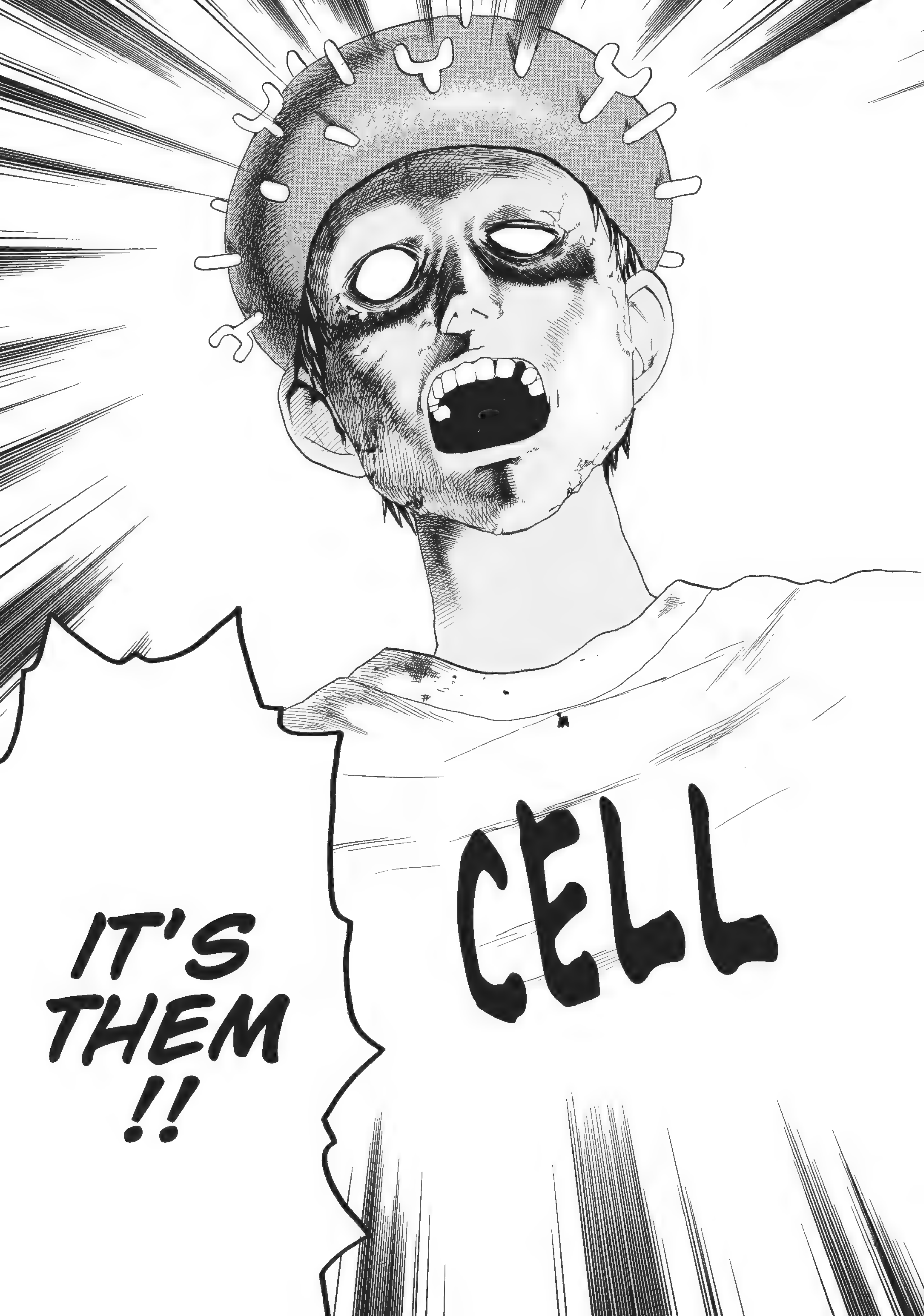
The deeper-colored side faces out. Once they receive the carbon dioxide, all that the Red Blood Cells in the veins have to do is to head back to the lungs. They can take it a little slower.

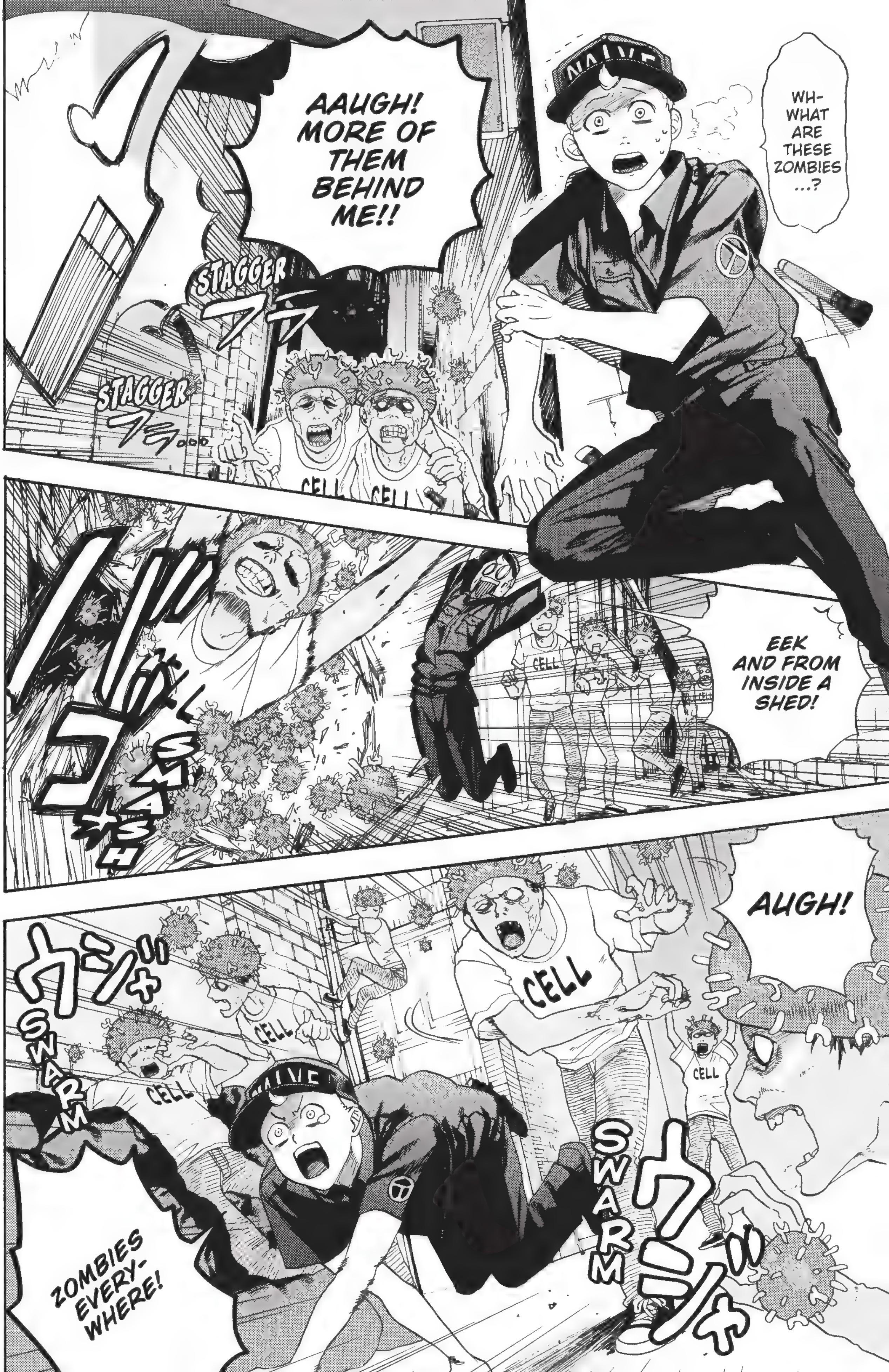
Cells at Work!
はたらく細胞

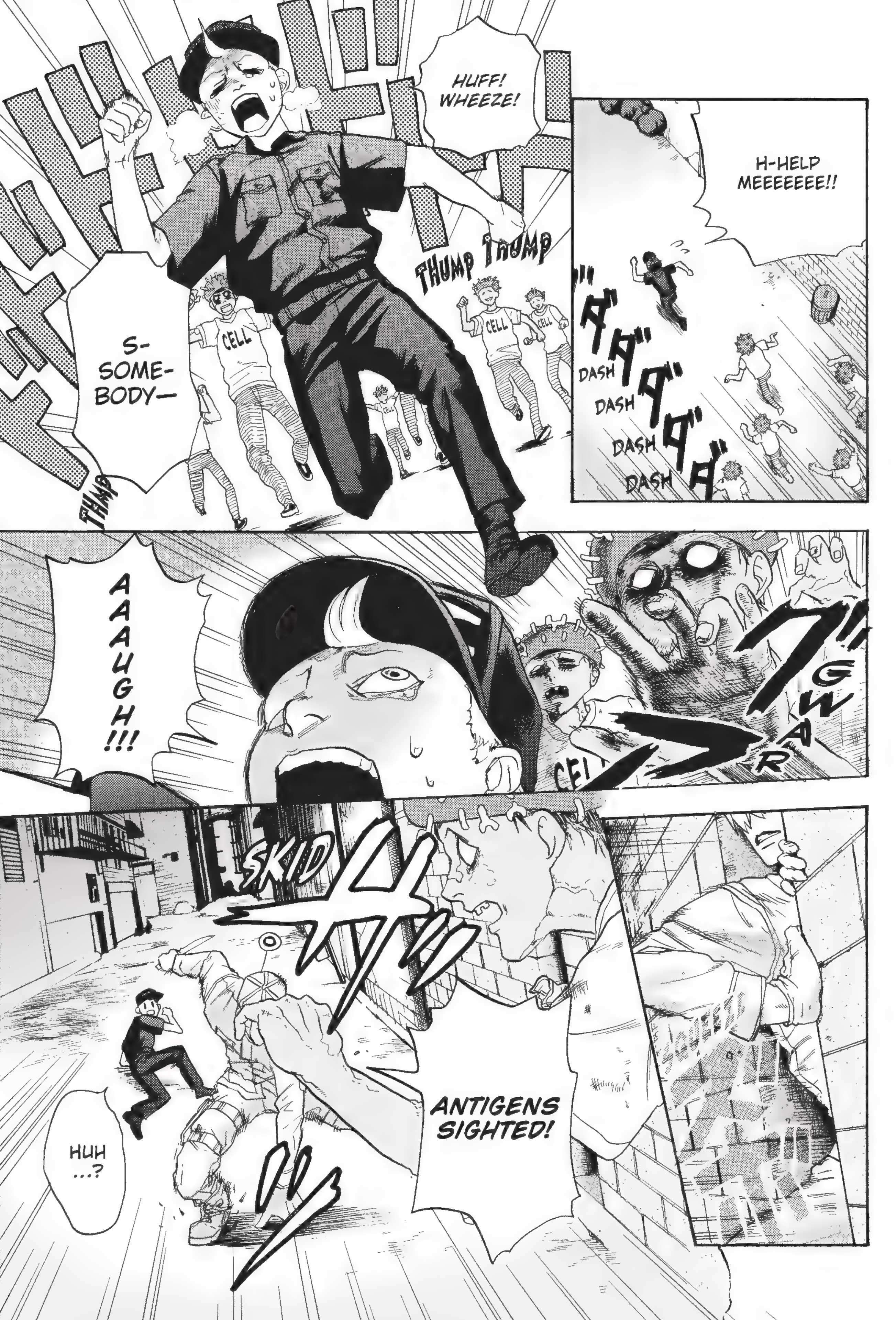

コッーン
CLAAACK
コッーン
CLAAACK
コッーン
CLACK
UGH...
WHAT IS THE DEAL WITH THIS TOWN?
コッーン
CLACK
THERE ISN'T A SINGLE PERSON HERE...
WHAT'S GOING ON...?!
SO CREEPY...
ガタッ
GA TUNK
EEK...
カッ
SHINE

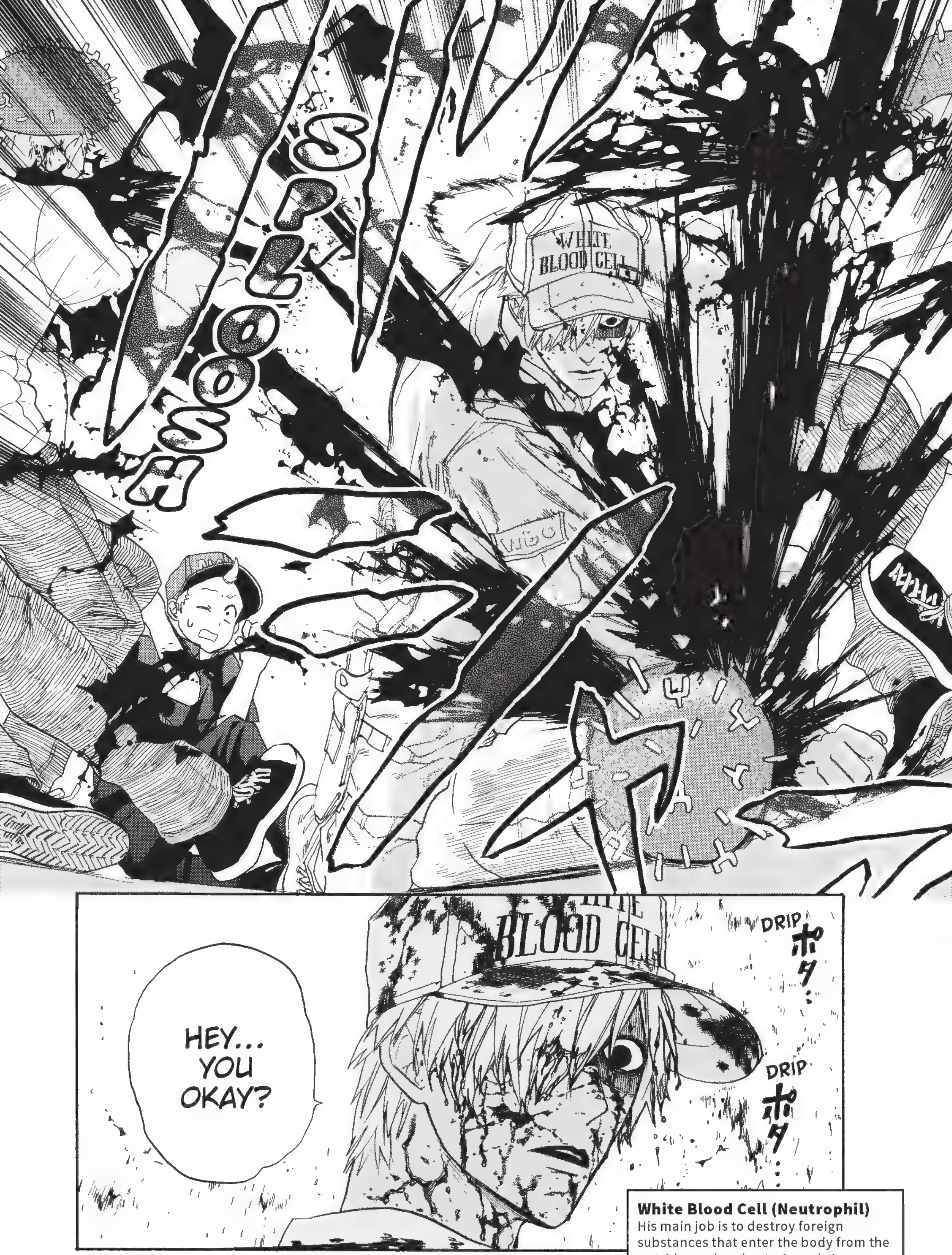

A-AAAAA AUGH!
CELL

CHAPTER 3: INFLUENZA

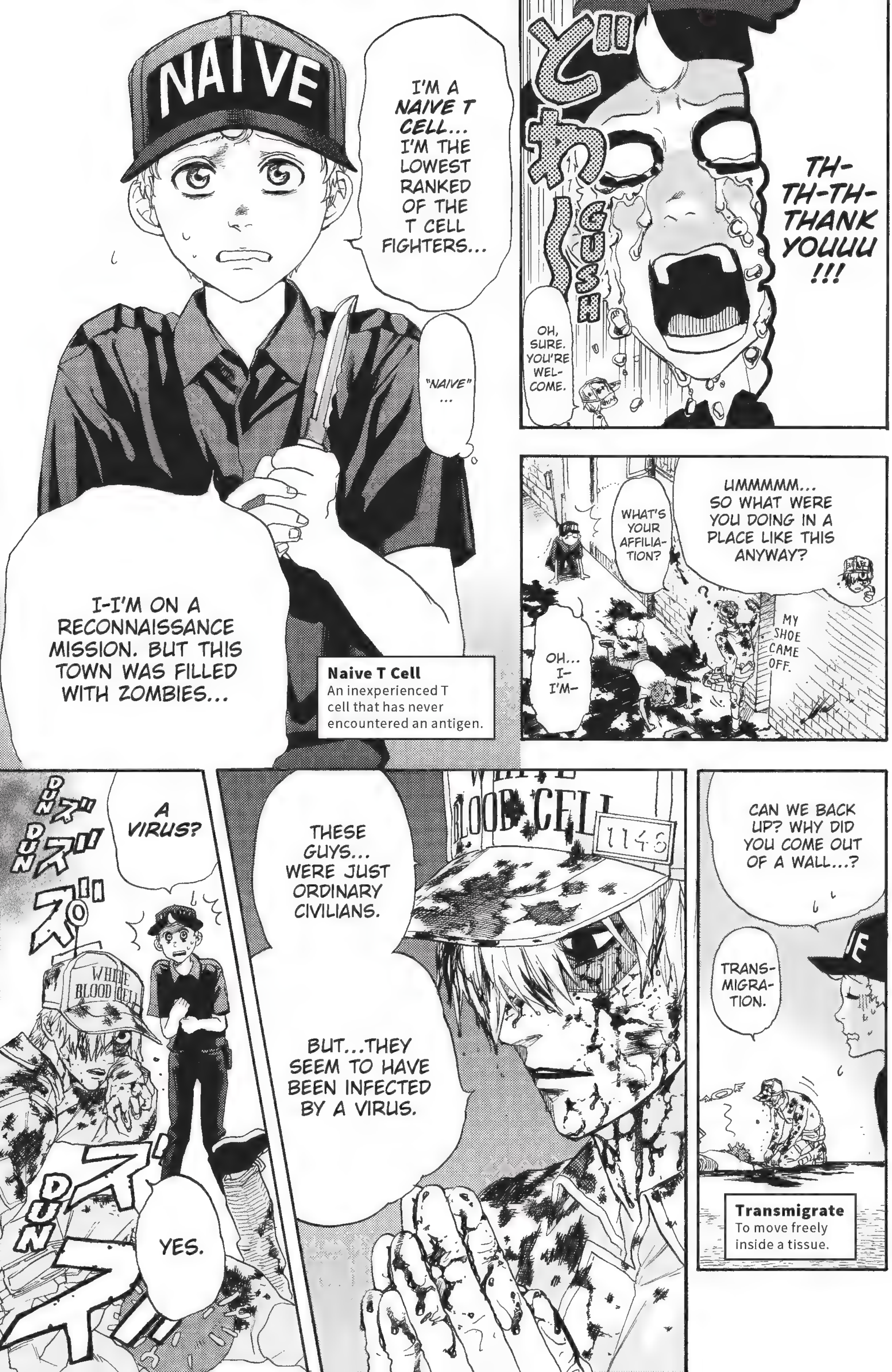

CELL
IT'S THEM !!


WH-WHAT ARE THESE ZOMBIES ...?
AAUGH! MORE OF THEM BEHIND ME!!
STAGGER
STAGGER
CELL
CELL
EEK AND FROM INSIDE A SHED!
CELL
SMASH
AUGH!
CELL
CELL
CELL
SWARM
SWARM
ZOMBIES EVERY-WHERE!


HUFF! WHEEZE!
S-SOMEBODY—
THUMP THUMP
THUMP
CELL
H-HELP MEEEEEEE!!
DASH DASH DASH DASH
AAAAUGH!!!
GWAR
SKID
ANTIGENS SIGHTED!
HUH ...?

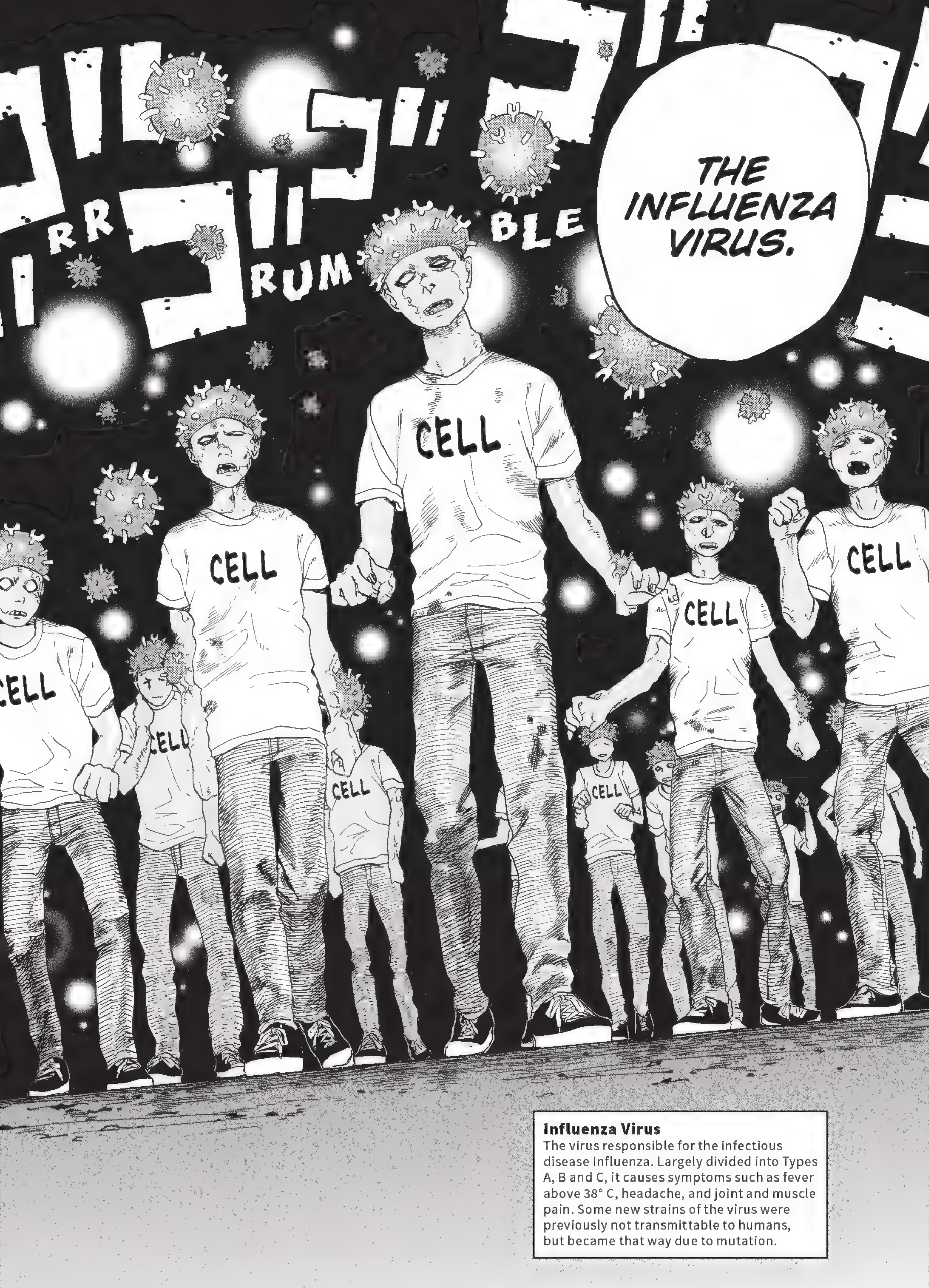

SPLOOSH
WHITE BLOOD CELL
DRIP ポタ…
DRIP ポタ…
BLOOD CELL
HEY… YOU OKAY?

White Blood Cell (Neutrophil)
His main job is to destroy foreign substances that enter the body from the outside, such as bacteria and viruses. Neutrophils make up more than half of all white blood cells in the blood.

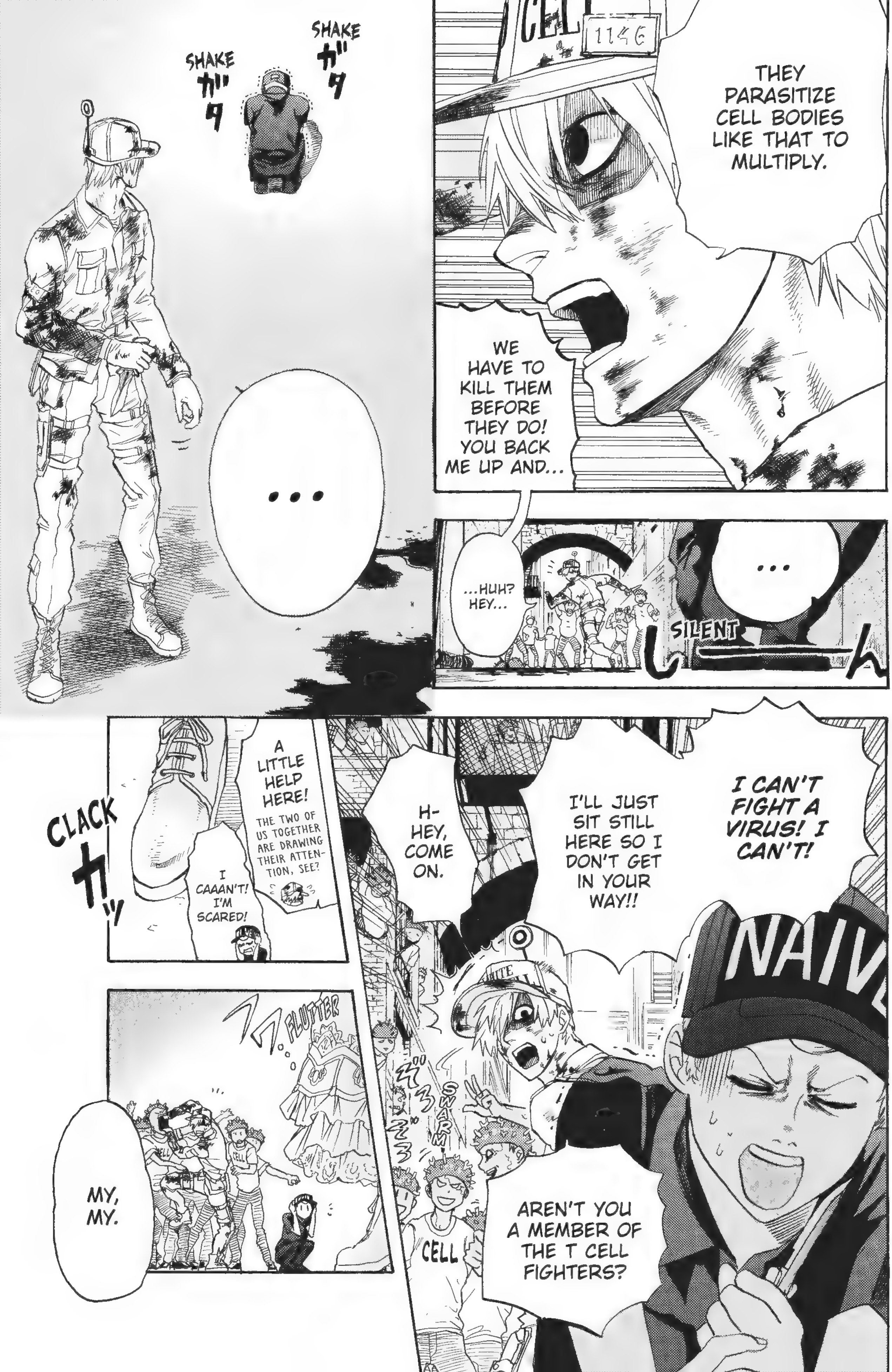

どわっ
GUSH
TH-TH-TH-THANK YOUUU!!!
OH, SURE. YOU'RE WEL-COME.
UMMMMM... SO WHAT WERE YOU DOING IN A PLACE LIKE THIS ANYWAY?
WHAT'S YOUR AFFILIATION?
OH... I-I'M-
MY SHOE CAME OFF.
I'M A *NAIVE T CELL*... I'M THE LOWEST RANKED OF THE T CELL FIGHTERS...
"NAIVE"...
I-I'M ON A RECONNAISSANCE MISSION. BUT THIS TOWN WAS FILLED WITH ZOMBIES...
NAIVE
CAN WE BACK UP? WHY DID YOU COME OUT OF A WALL...?
TRANS-MIGRA-TION.
WHITE BLOOD CELL 1146
THESE GUYS... WERE JUST ORDINARY CIVILIANS.
BUT...THEY SEEM TO HAVE BEEN INFECTED BY A VIRUS.
ズズズ
DUN DUN
A VIRUS?
YES.
ズ
DUN

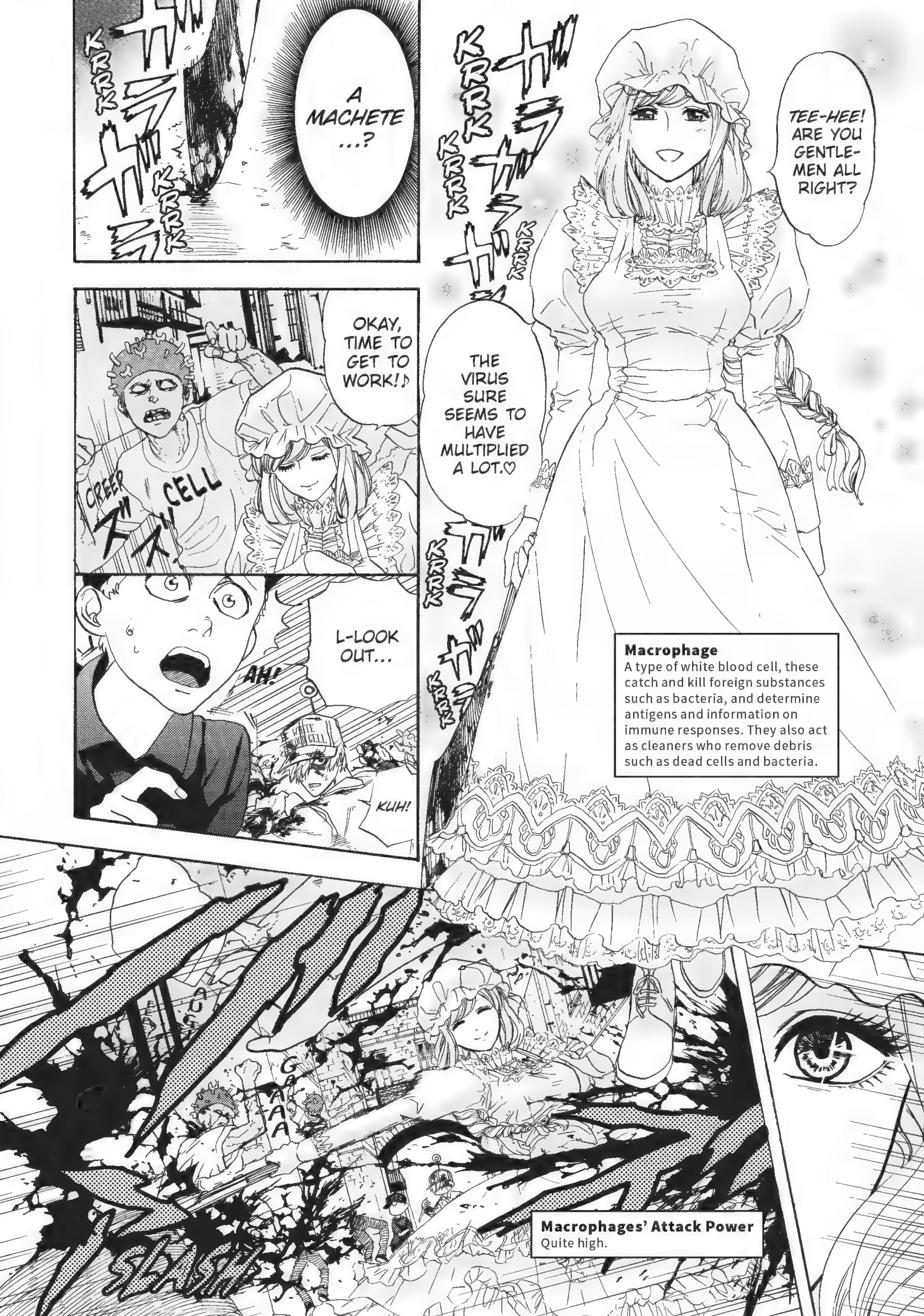
Naive T Cell
An inexperienced T cell that has never encountered an antigen.

Transmigrate
To move freely inside a tissue.


THE INFLUENZA VIRUS.
RR RUMBLE
CELL

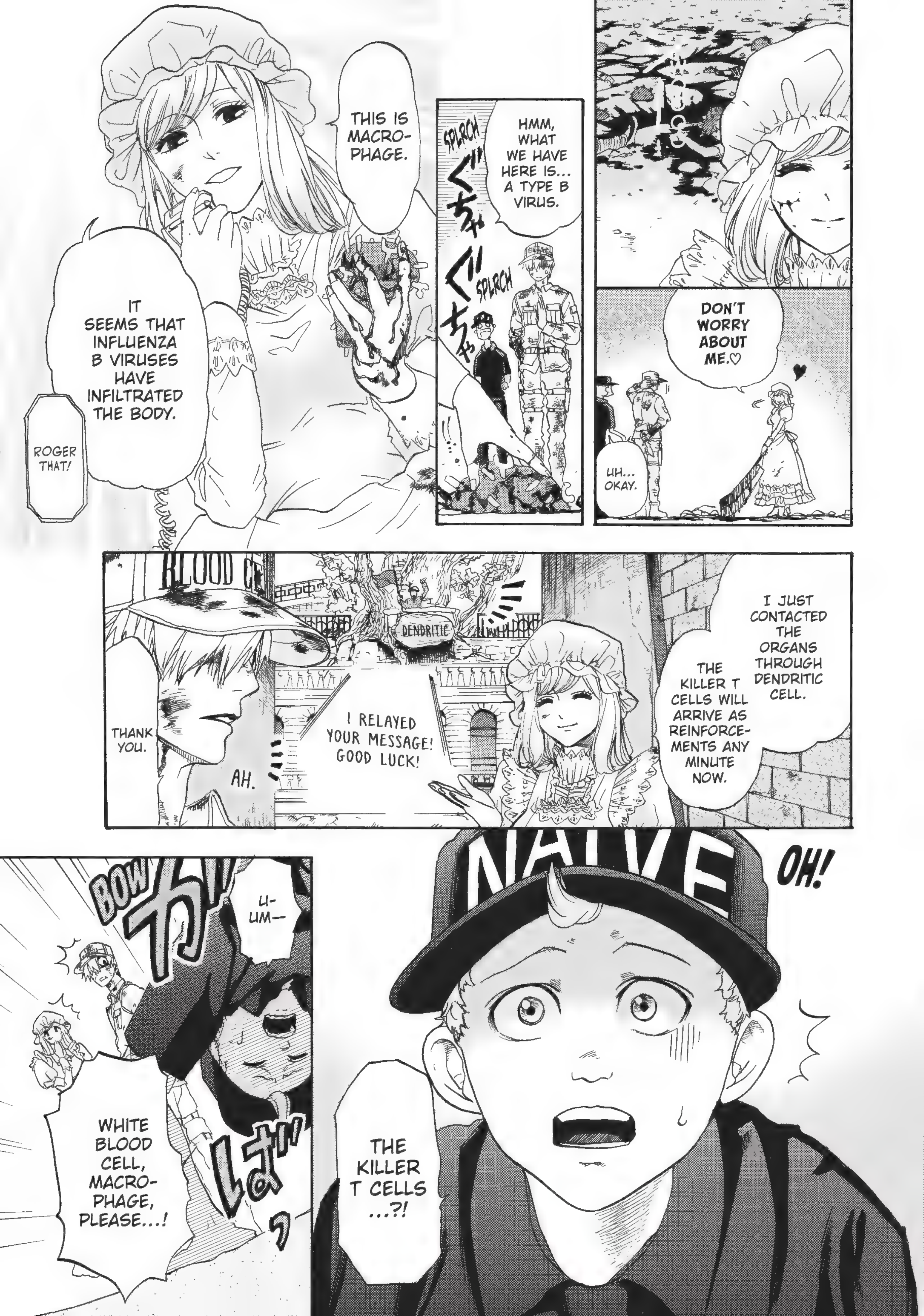
Influenza Virus
The virus responsible for the infectious disease Influenza. Largely divided into Types A, B and C, it causes symptoms such as fever above 38° C, headache, and joint and muscle pain. Some new strains of the virus were previously not transmittable to humans, but became that way due to mutation.

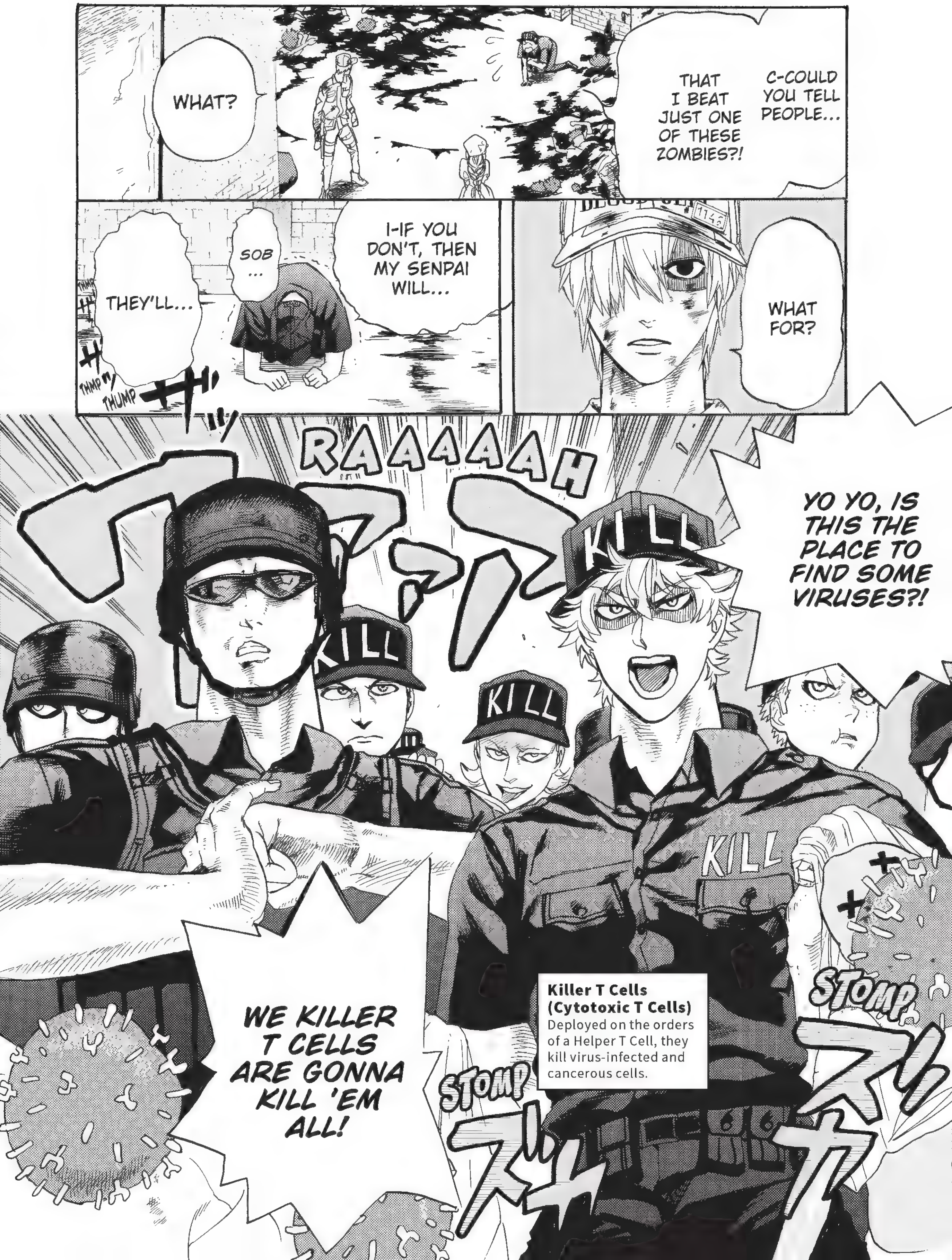

CELL
1146
THEY PARASITIZE CELL BODIES LIKE THAT TO MULTIPLY.
WE HAVE TO KILL THEM BEFORE THEY DO! YOU BACK ME UP AND...
...HUH? HEY...
...
SILENT
SHAKE ガタ
SHAKE ガタ
...
I CAN'T FIGHT A VIRUS! I CAN'T!
I'LL JUST SIT STILL HERE SO I DON'T GET IN YOUR WAY!!
H-HEY, COME ON.
NAIVE
ARE'NT YOU A MEMBER OF THE T CELL FIGHTERS?
A LITTLE HELP HERE!
THE TWO OF US TOGETHER ARE DRAWING THEIR ATTENTION, SEE?
I CAAAN'T! I'M SCARED!
CLACK カッ
FLUTTER
SWARM
CELL
MY, MY.


KRRK
ガラガラ
TEE-HEE! ARE YOU GENTLEMEN ALL RIGHT?
KRRK
ガラガラ
A MACHETE ...?
THE VIRUS SURE SEEMS TO HAVE MULTIPLIED A LOT.♡
OKAY, TIME TO GET TO WORK!♪
CREEP
ズズ
CELL
L-LOOK OUT...
AH!
WHITE BLOOD CELL
KUH!
AUGH
GAAAA
SLASH!

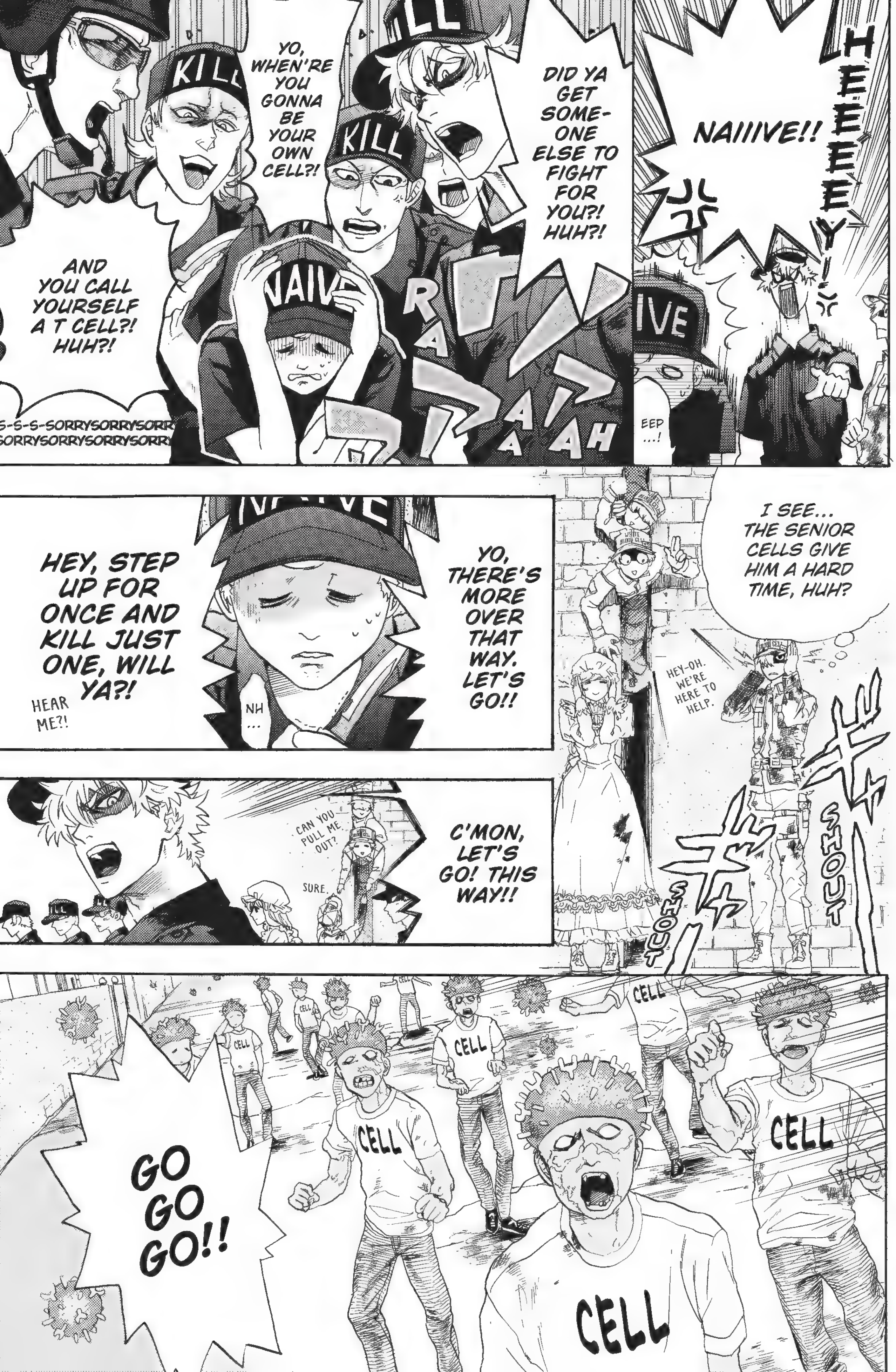
Macrophage
A type of white blood cell, these catch and kill foreign substances such as bacteria, and determine antigens and information on immune responses. They also act as cleaners who remove debris such as dead cells and bacteria.

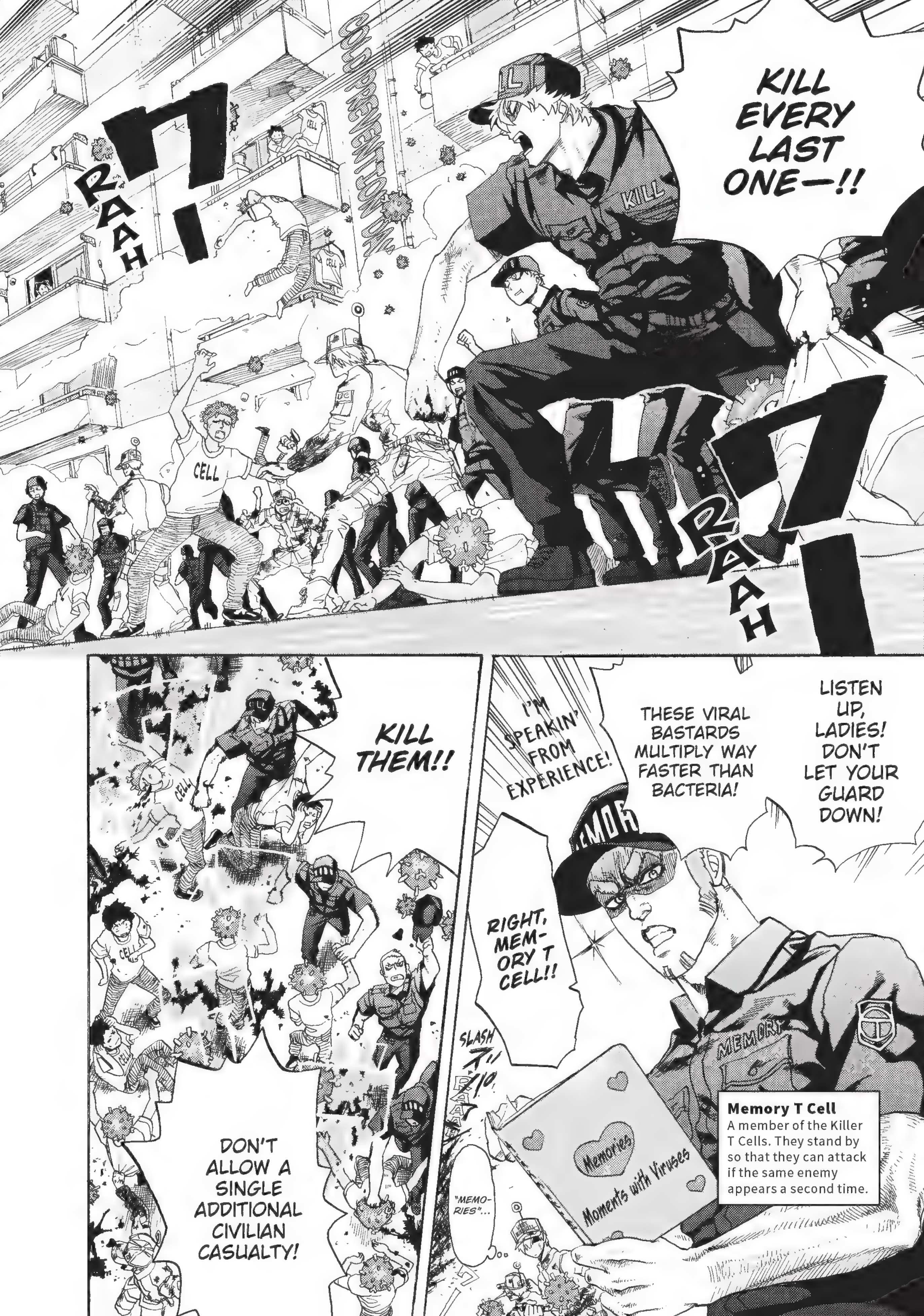
Macrophages' Attack Power
Quite high.


DON'T WORRY ABOUT ME.♡
UH... OKAY.
SPLRCH
SPLRCH
HMM, WHAT WE HAVE HERE IS... A TYPE B VIRUS.
THIS IS MACRO-PHAGE.
IT SEEMS THAT INFLUENZA B VIRUSES HAVE INFILTRATED THE BODY.
ROGER THAT!
BLOOD CE
DENDRITIC
I JUST CONTACTED THE ORGANS THROUGH DENDRITIC CELL.
THE KILLER T CELLS WILL ARRIVE AS REINFORCE-MENTS ANY MINUTE NOW.
I RELAYED YOUR MESSAGE! GOOD LUCK!
AH.
THANK YOU.
NAIVE
OH!
THE KILLER T CELLS ...?!
U-UM—
BOW
WHITE BLOOD CELL, MACRO-PHAGE, PLEASE...!

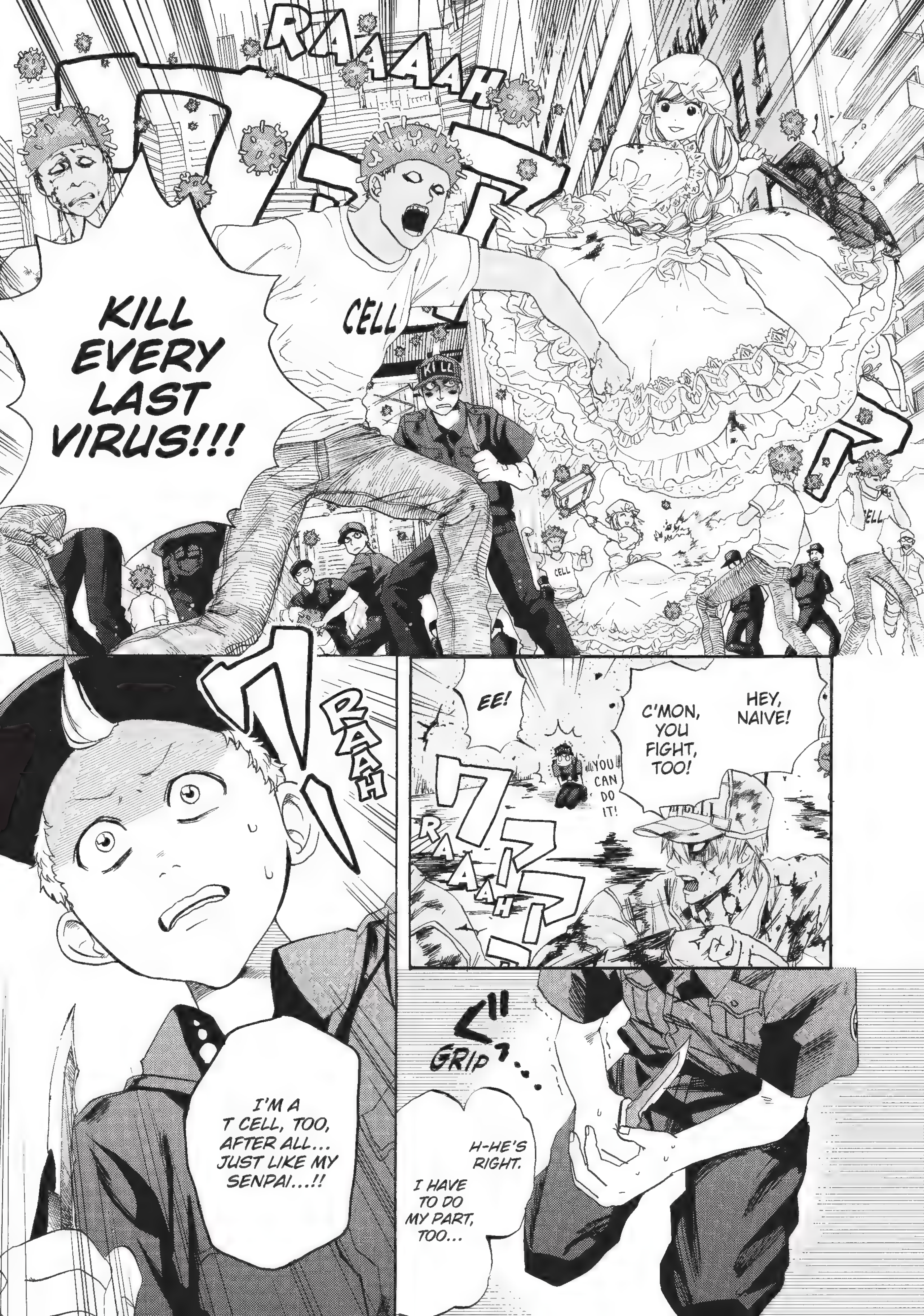

C-COULD YOU TELL PEOPLE...
THAT I BEAT JUST ONE OF THESE ZOMBIES?!
WHAT?
WHAT FOR?
I-IF YOU DON'T, THEN MY SENPAI WILL...
SOB ...
THEY'LL...
THUMP
THUMP
THUMP
RAAAAAH
YO YO, IS THIS THE PLACE TO FIND SOME VIRUSES?!
KILL
KILL
KILL
KILL
WE KILLER T CELLS ARE GONNA KILL 'EM ALL!
STOMP
STOMP

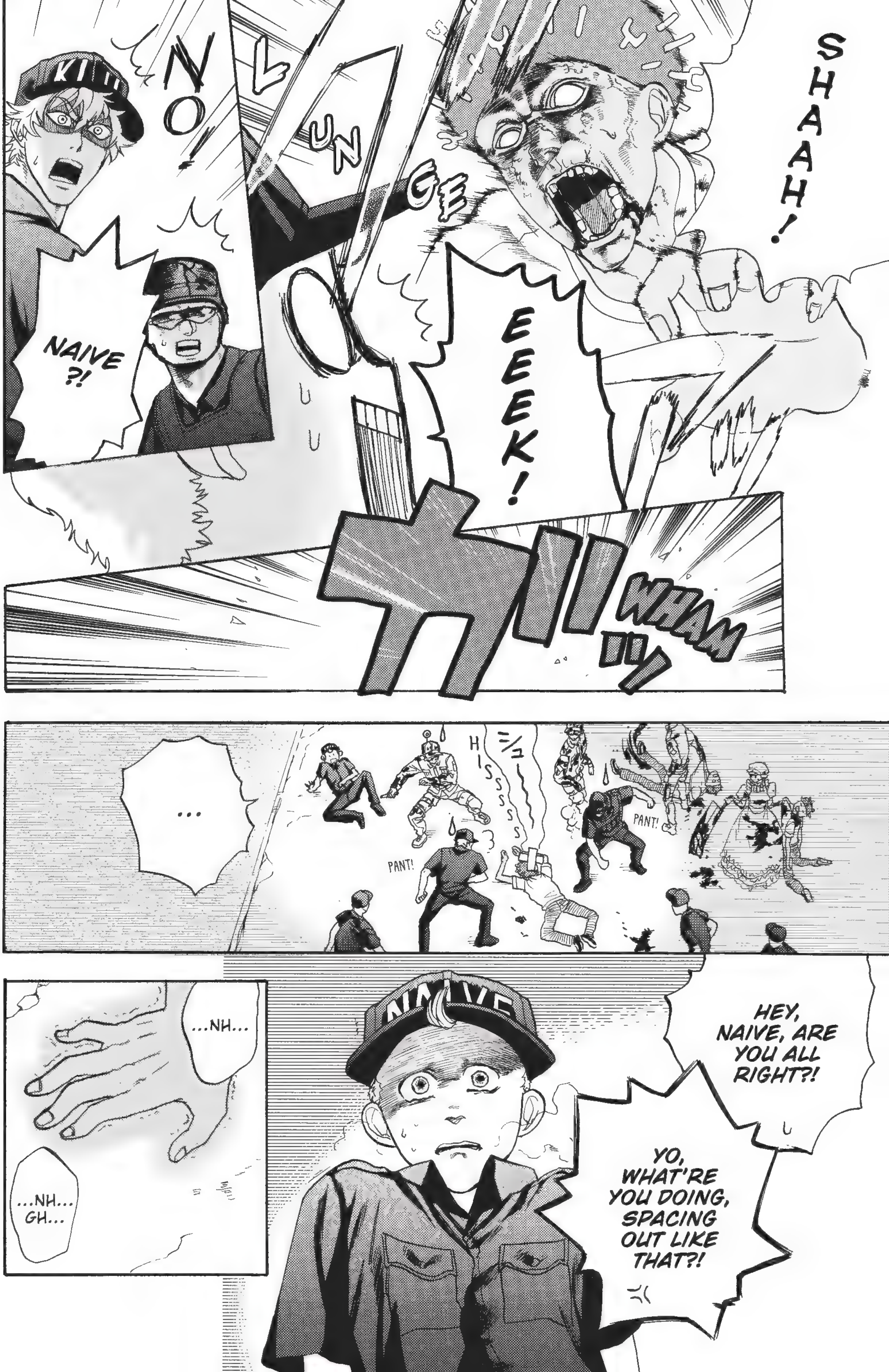
Killer T Cells (Cytotoxic T Cells)
Deployed on the orders of a Helper T Cell, they kill virus-infected and cancerous cells.

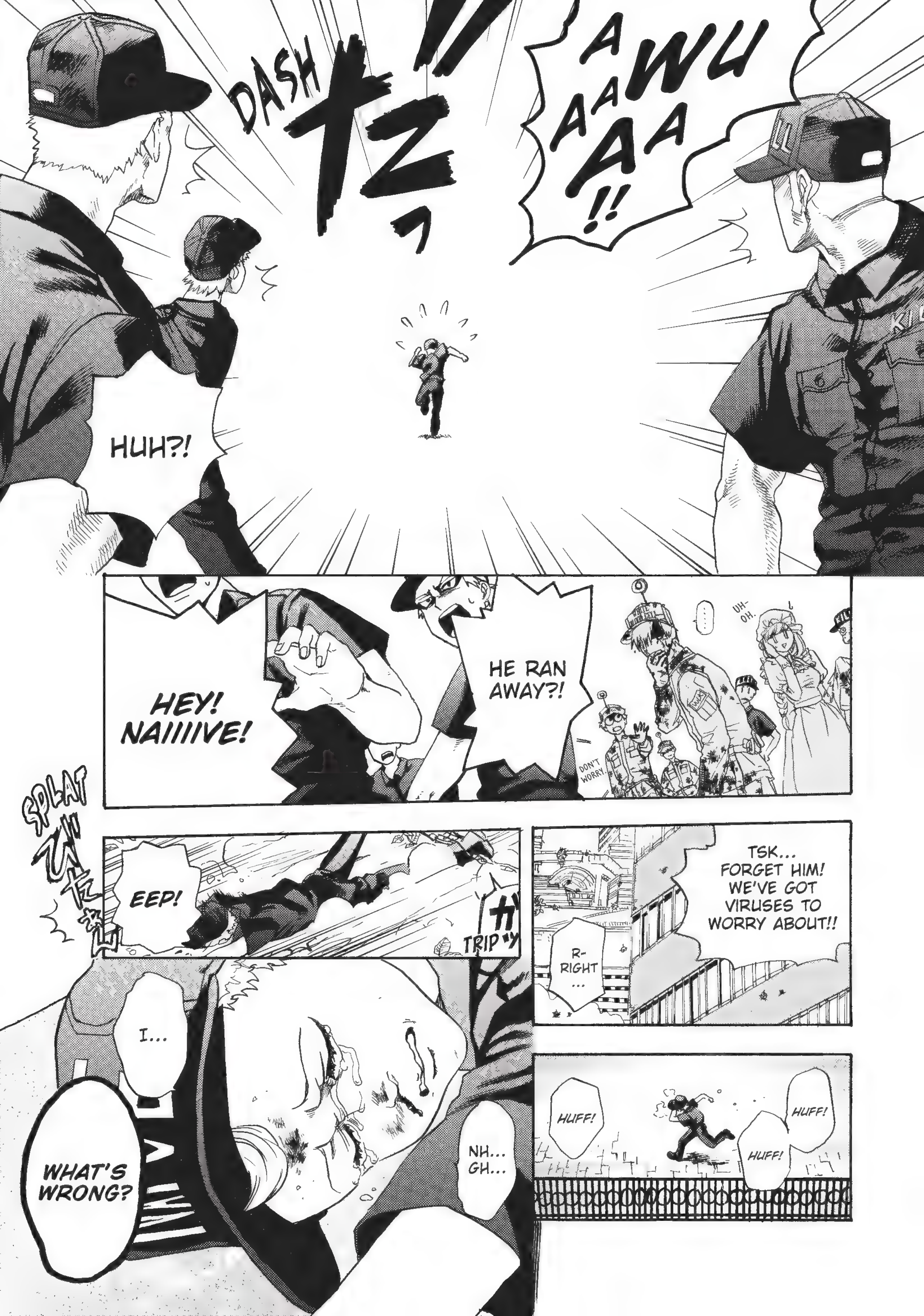

HEEEEEY!!
NAIIIVE!!
EEP ...!
IVE
DID YA GET SOMEONE ELSE TO FIGHT FOR YOU?! HUH?!
YO, WHEN'RE YOU GONNA BE YOUR OWN CELL?!
KILL
NAIVE
AND YOU CALL YOURSELF A T CELL?! HUH?!
RAAAAAH
S-S-S-SORRYSORRYSORR SORRYSORRYSORRYSORR
I SEE... THE SENIOR CELLS GIVE HIM A HARD TIME, HUH?
HEY-OH. WE'RE HERE TO HELP.
SHOUT
SHOUT
YO, THERE'S MORE OVER THAT WAY. LET'S GO!!
NH ...
HEY, STEP UP FOR ONCE AND KILL JUST ONE, WILL YA?!
HEAR ME?!
C'MON, LET'S GO! THIS WAY!!
CAN YOU PULL ME OUT?
SURE.
GO GO GO!!
CELL
CELL
CELL
CELL

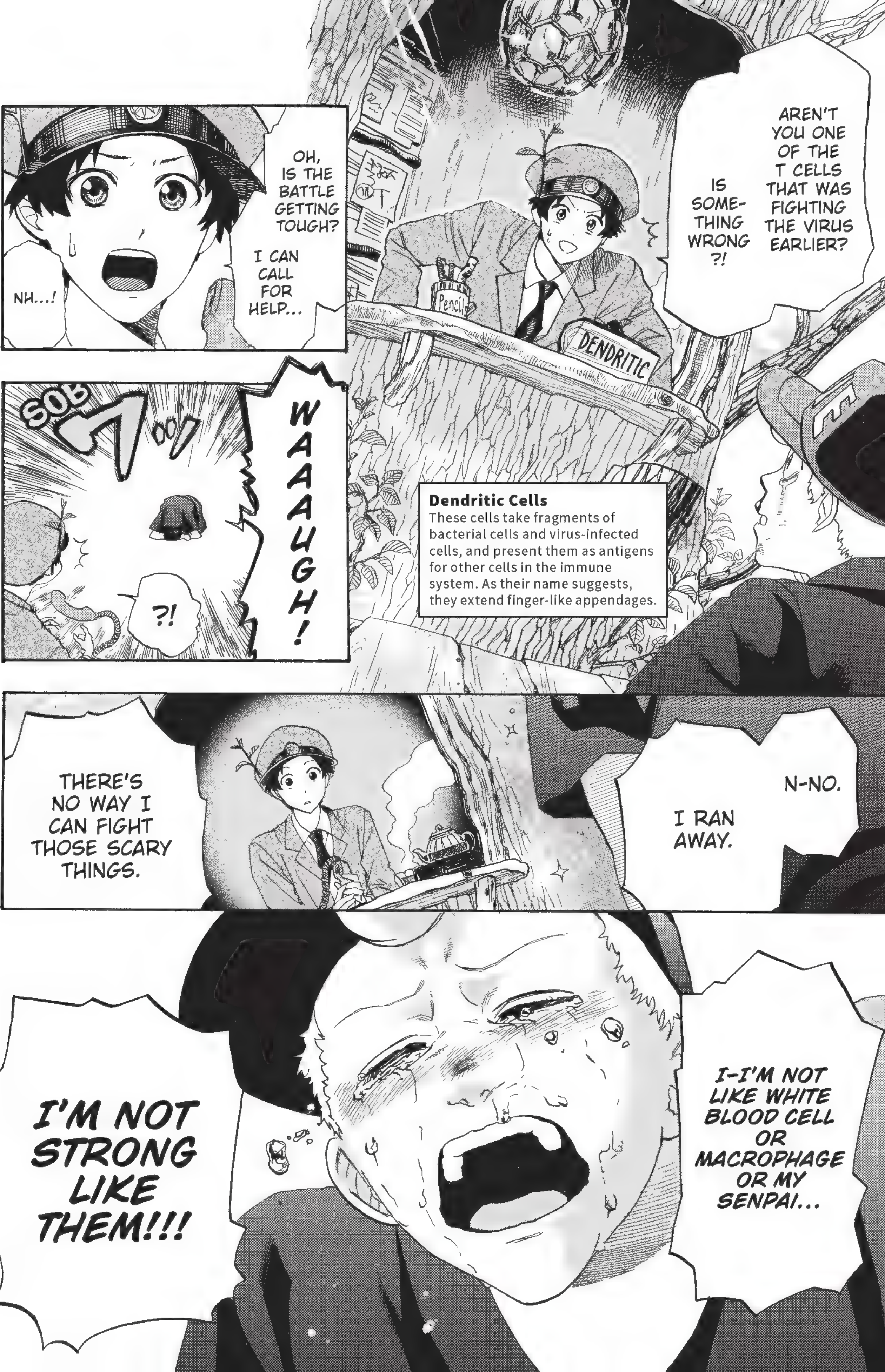

KILL EVERY LAST ONE—!!
RAAH
RAAH
LISTEN UP, LADIES! DON'T LET YOUR GUARD DOWN!
THESE VIRAL BASTARDS MULTIPLY WAY FASTER THAN BACTERIA!
I'M SPEAKIN' FROM EXPERIENCE!
RIGHT, MEMORY T CELL!!
SLASH
RAAAH
"MEMORIES"...
Memories
Moments with Viruses
KILL THEM!!
DON'T ALLOW A SINGLE ADDITIONAL CIVILIAN CASUALTY!

Memory T Cell
A member of the Killer T Cells. They stand by so that they can attack if the same enemy appears a second time.

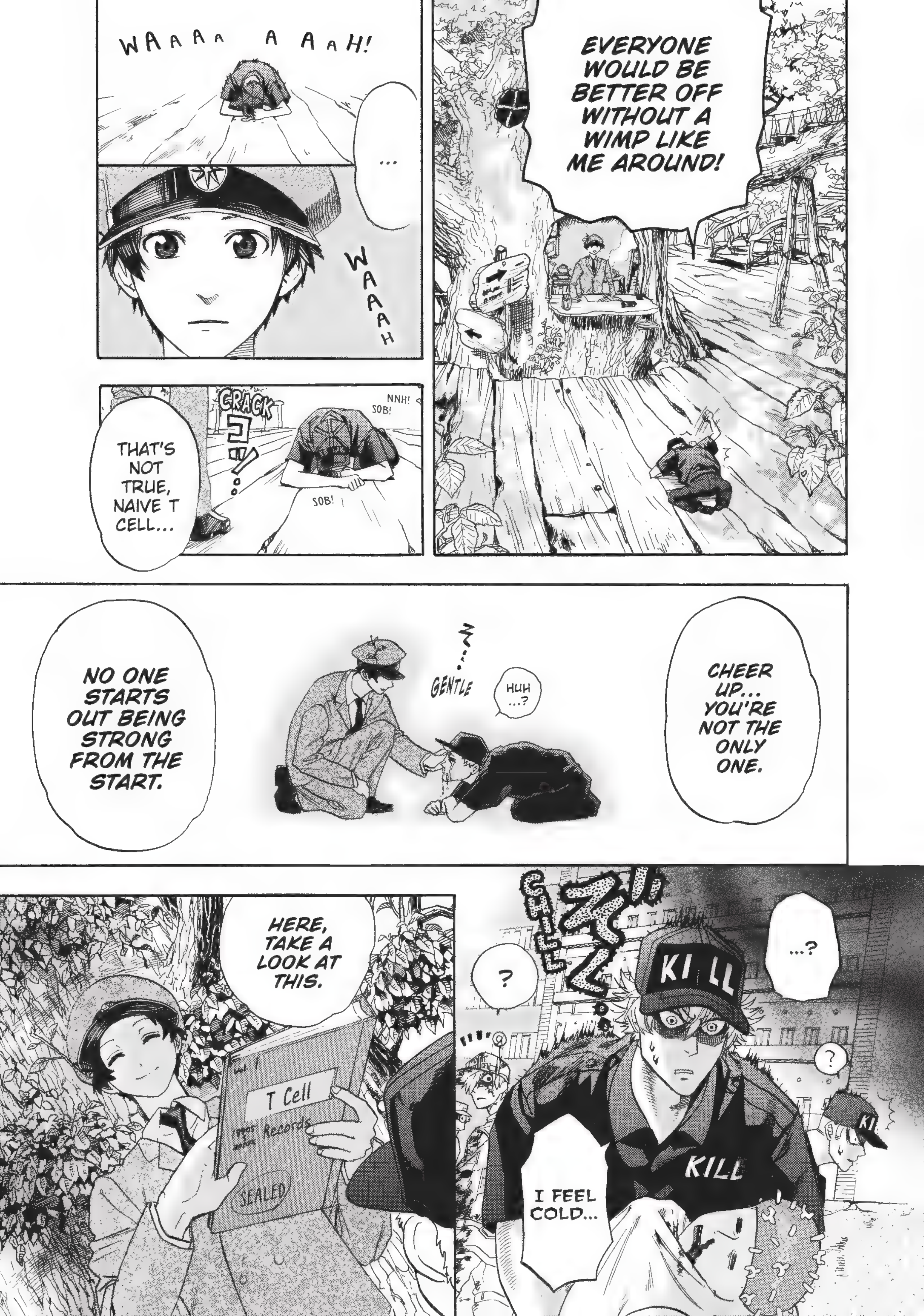

RAAAAH
KILL EVERY LAST VIRUS!!!
CELL
KILL
CELL
CELL
HEY, NAIVE!
C'MON, YOU FIGHT, TOO!
YOU CAN DO IT!
EE!
RAAAAH
RAAAH
GRIP...
H-HE'S RIGHT.
I HAVE TO DO MY PART, TOO...
I'M A T CELL, TOO, AFTER ALL... JUST LIKE MY SENPAI...!!

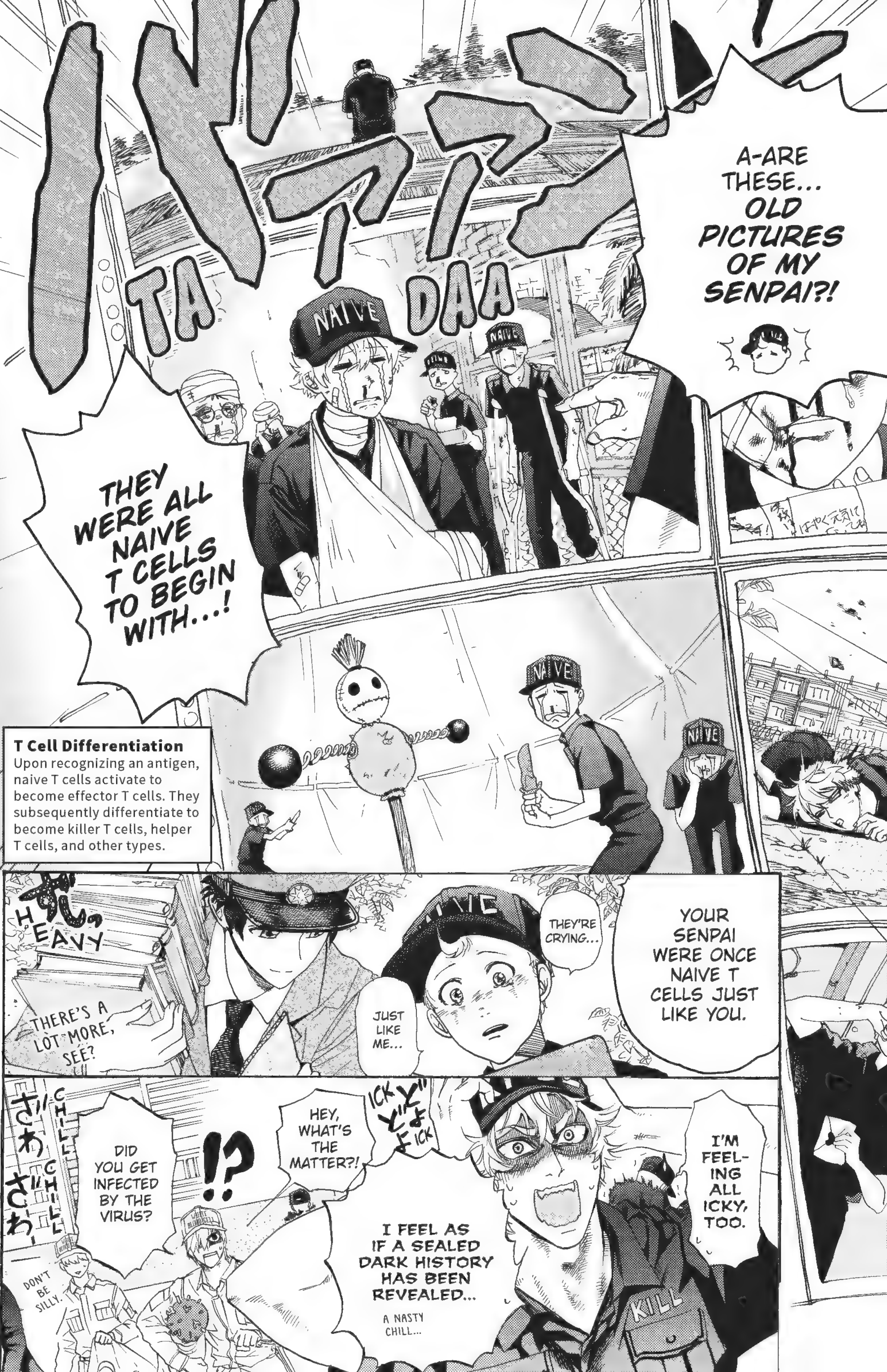

SHAAH!
EEEEK!
LUNGE
NO!
NAIVE ?!
WHAM
...
HISSSSS
PANT!
PANT!
HEY, NAIVE, ARE YOU ALL RIGHT?!
YO, WHAT'RE YOU DOING, SPACING OUT LIKE THAT?!
...NH...
...NH... GH...


AAAWUAAAA!!
DASH
ダッ
HUH?!
......
UH-OH.
DON'T WORRY.
HE RAN AWAY?!
HEY! NAIIIIVE!
TSK... FORGET HIM! WE'VE GOT VIRUSES TO WORRY ABOUT!!
R-RIGHT...
ガッ
TRIP
EEP!
SPLAT
びたーん
HUFF!
HUFF!
HUFF!
NH... GH...
I...
WHAT'S WRONG?

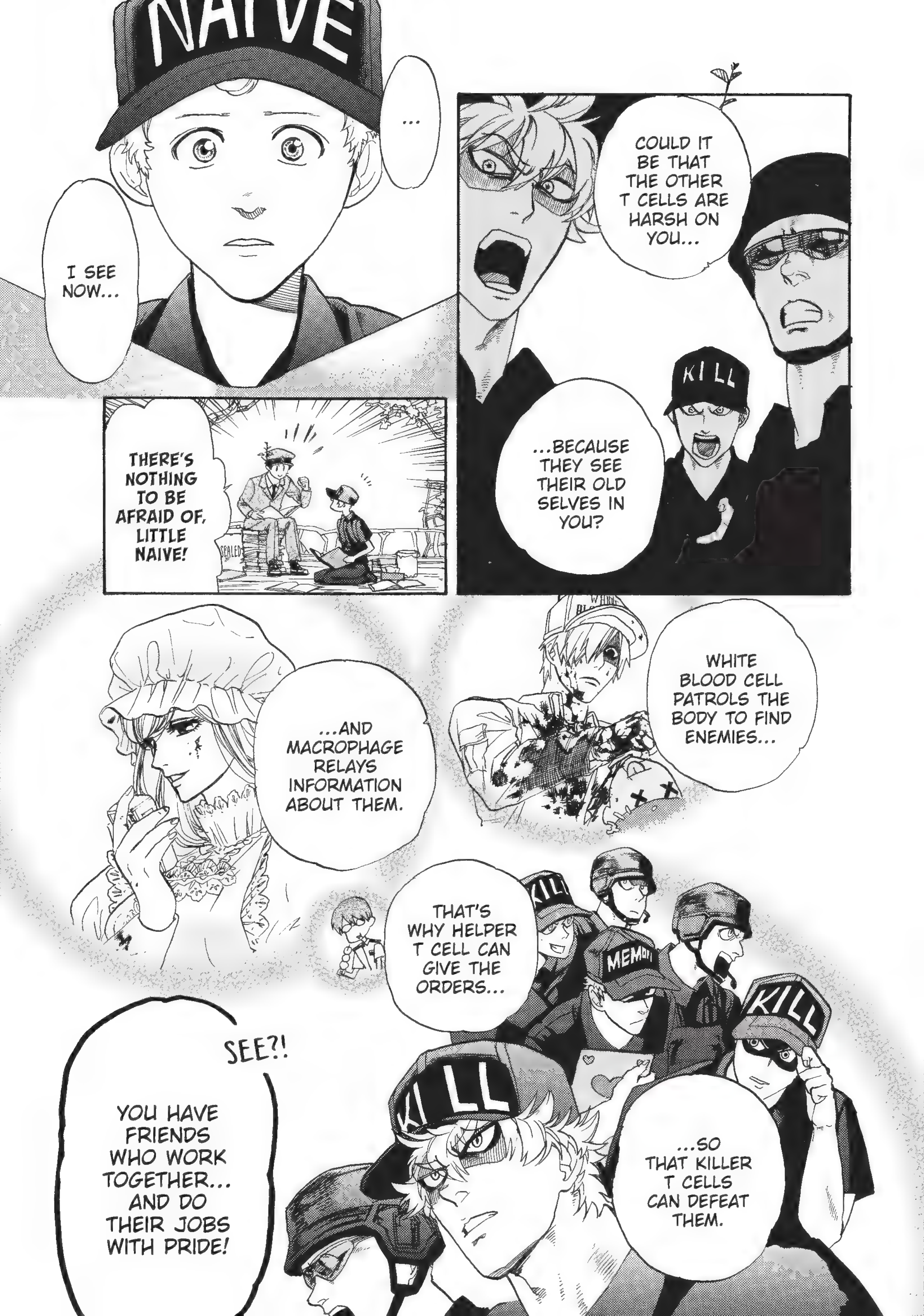

AREN'T YOU ONE OF THE T CELLS THAT WAS FIGHTING THE VIRUS EARLIER?
IS SOMETHING WRONG?!
Pencils
DENDRITIC
OH, IS THE BATTLE GETTING TOUGH?
I CAN CALL FOR HELP...
NH...!
WAAAAUGH!
SOB
?!
N-NO.
I RAN AWAY.
THERE'S NO WAY I CAN FIGHT THOSE SCARY THINGS.
I-I'M NOT LIKE WHITE BLOOD CELL OR MACROPHAGE OR MY SENPAI...
I'M NOT STRONG LIKE THEM!!!

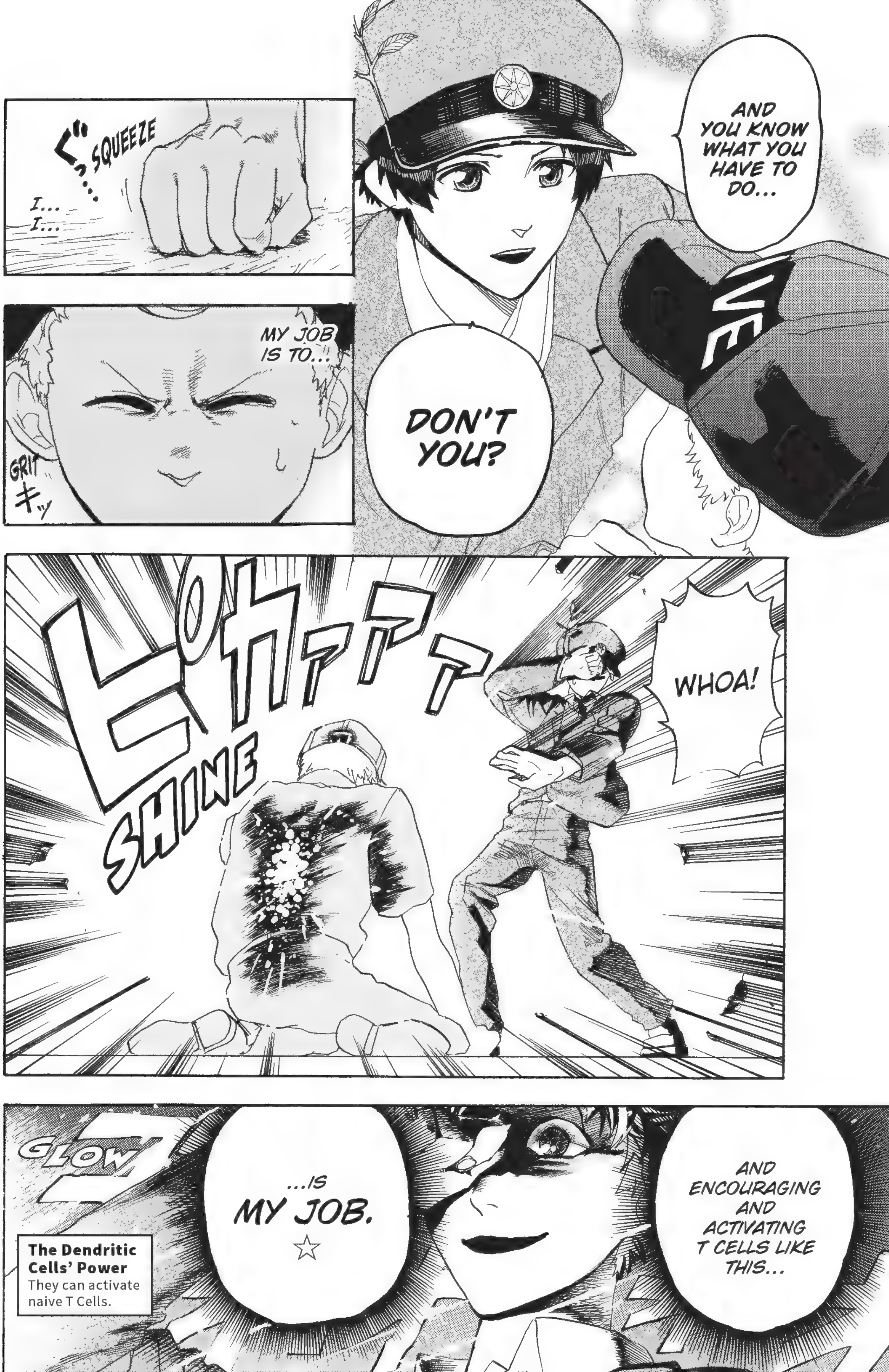
Dendritic Cells
These cells take fragments of bacterial cells and virus-infected cells, and present them as antigens for other cells in the immune system. As their name suggests, they extend finger-like appendages.


EVERYONE WOULD BE BETTER OFF WITHOUT A WIMP LIKE ME AROUND!
WAAAAAAAH!
...
WAAAAH
NNH! SOB!
CRACK
SOB!
THAT'S NOT TRUE, NAIVE T CELL...
CHEER UP... YOU'RE NOT THE ONLY ONE.
HUH ...?
GENTLE
NO ONE STARTS OUT BEING STRONG FROM THE START.
...?
?
CHILL
KILL
?
I FEEL COLD...
HERE, TAKE A LOOK AT THIS.
vol. 1
T Cell
Records
SEALED

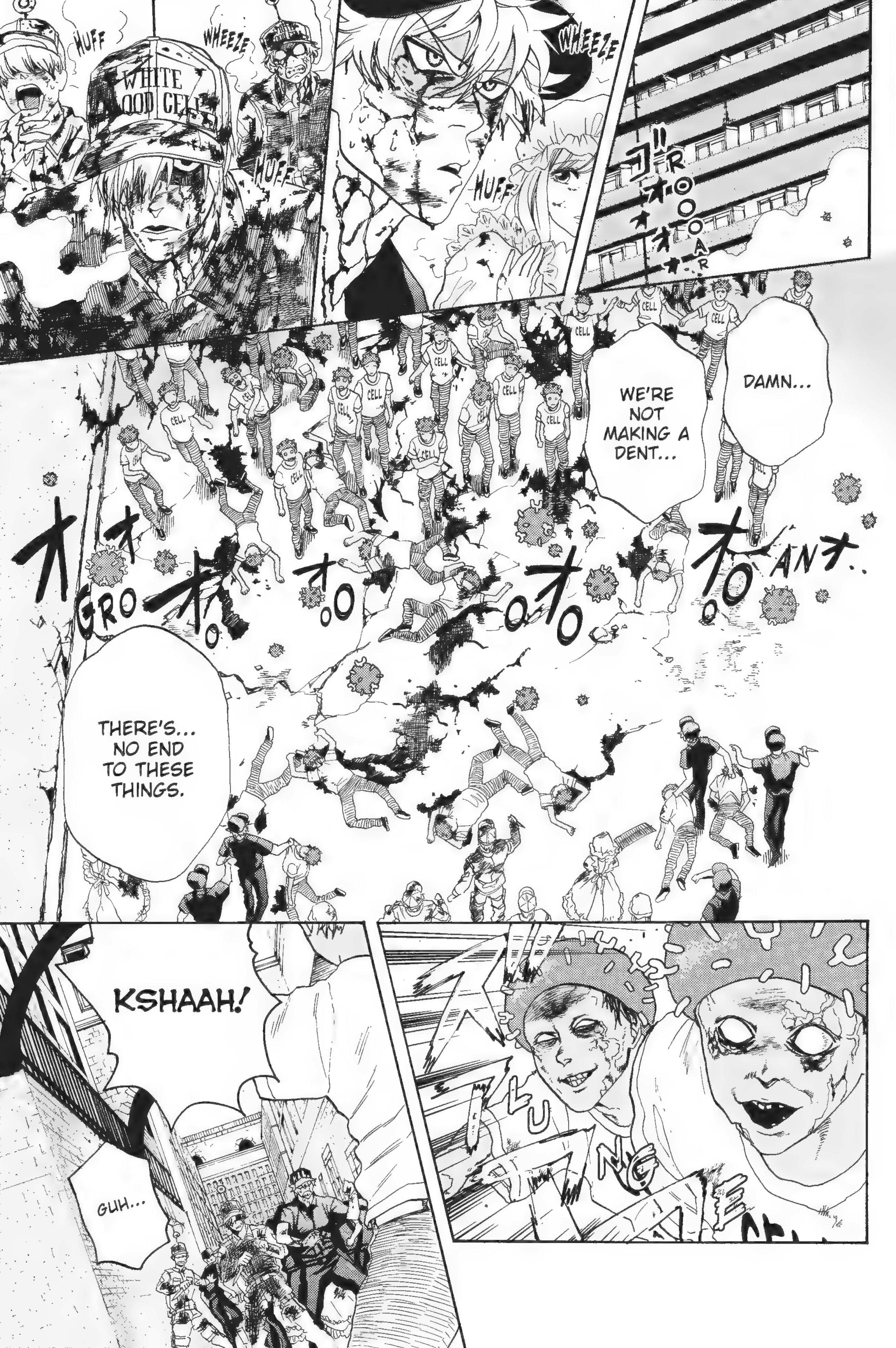

TA DAA
A-ARE THESE... OLD PICTURES OF MY SENPAI?!
NAIVE
THEY WERE ALL NAIVE T CELLS TO BEGIN WITH...!
NAIVE
NAIVE
YOUR SENPAI WERE ONCE NAIVE T CELLS JUST LIKE YOU.
THEY'RE CRYING...
JUST LIKE ME...
HEAVY
THERE'S A LOT MORE, SEE?
I'M FEELING ALL ICKY, TOO.
ICK ICK
HEY, WHAT'S THE MATTER?!
!?
DID YOU GET INFECTED BY THE VIRUS?
CHILL CHILL CHILL
I FEEL AS IF A SEALED DARK HISTORY HAS BEEN REVEALED...
A NASTY CHILL...
DON'T BE SILLY.
WHITE BLOOD CELL
KILL

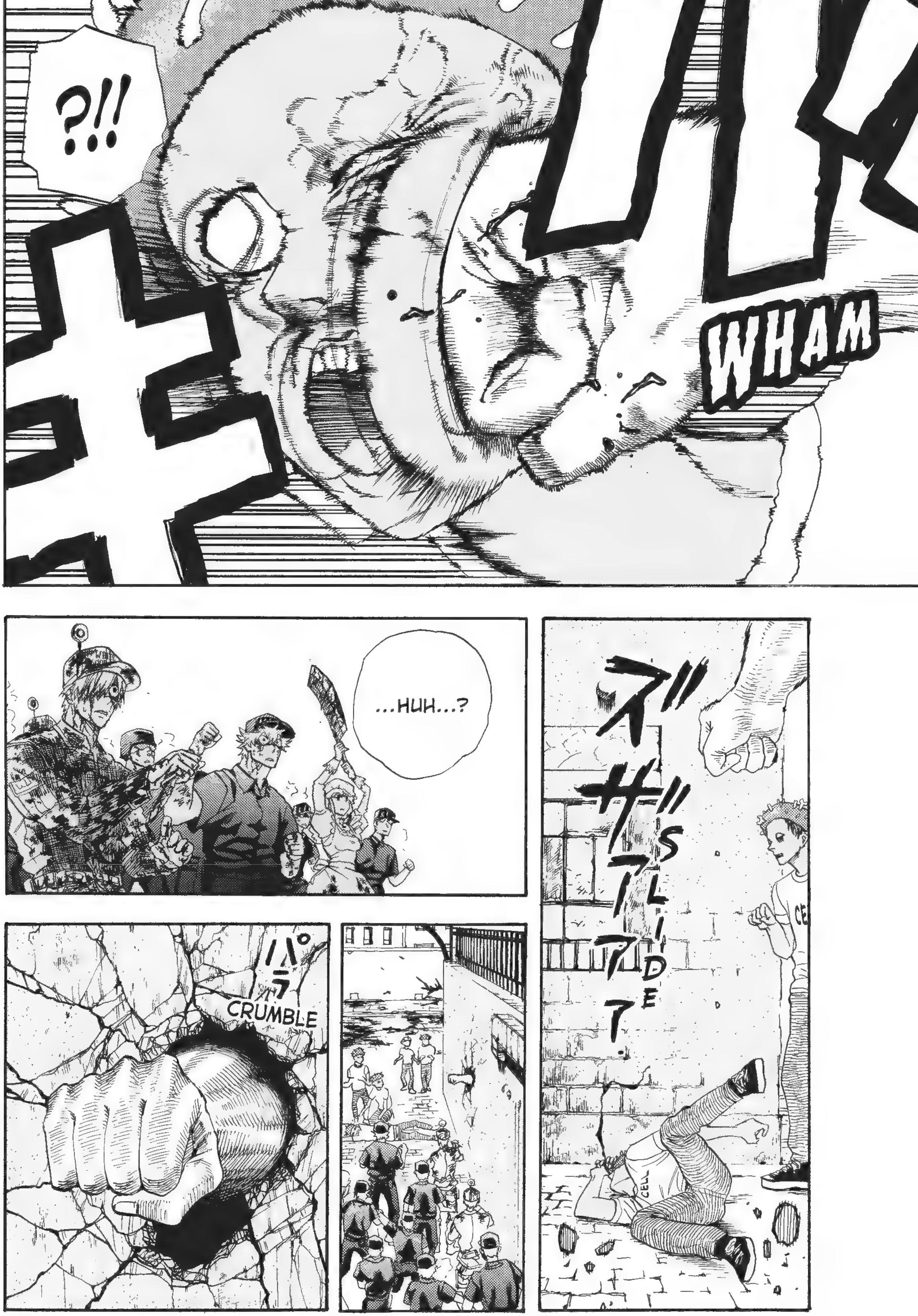
T Cell Differentiation
Upon recognizing an antigen, naive T cells activate to become effector T cells. They subsequently differentiate to become killer T cells, helper T cells, and other types.

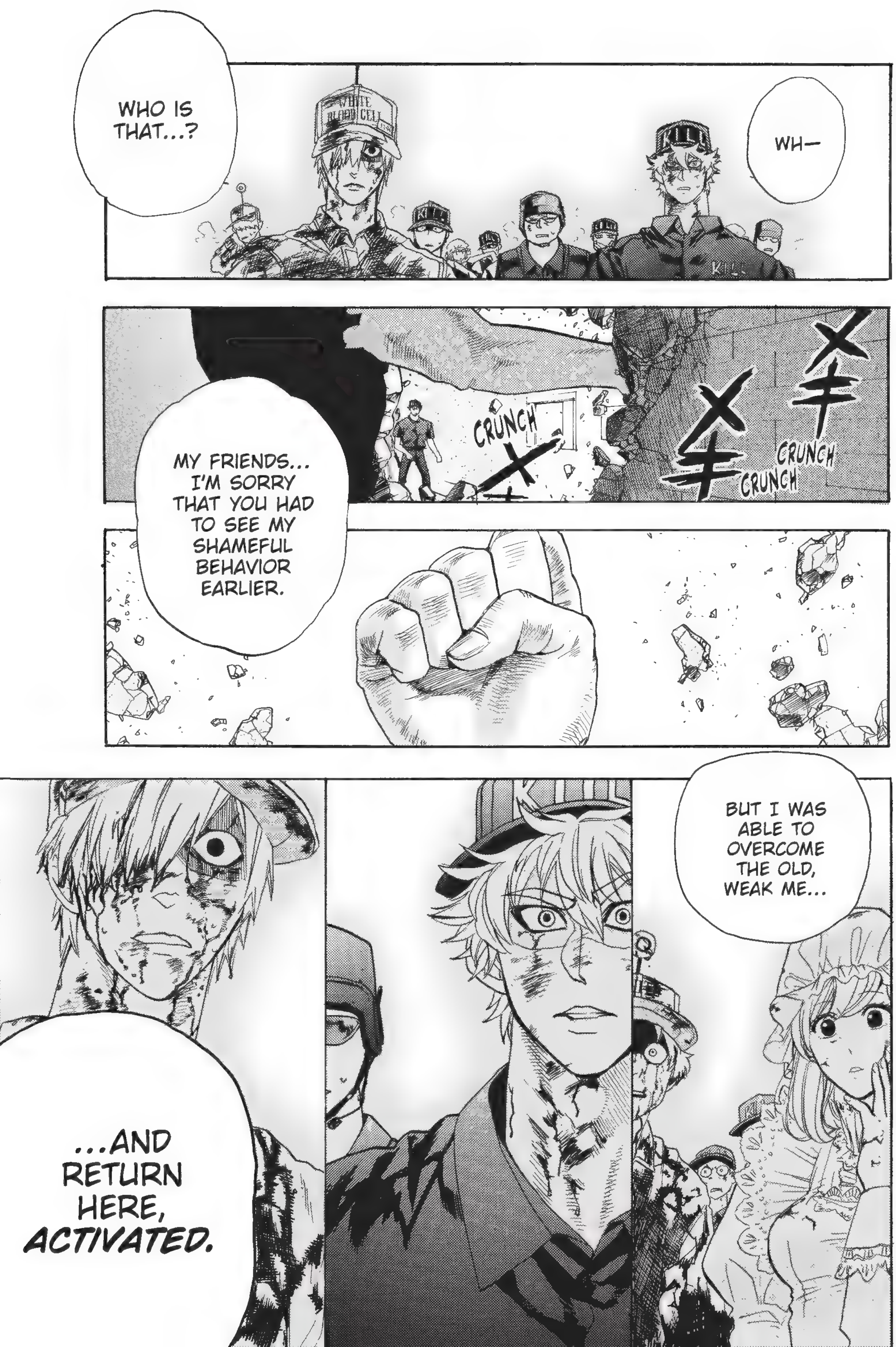

NAIVE
...
I SEE NOW...
COULD IT BE THAT THE OTHER T CELLS ARE HARSH ON YOU...
KILL
...BECAUSE THEY SEE THEIR OLD SELVES IN YOU?
THERE'S NOTHING TO BE AFRAID OF, LITTLE NAIVE!
SEALED
WHITE BLOOD CELL PATROLS THE BODY TO FIND ENEMIES...
...AND MACROPHAGE RELAYS INFORMATION ABOUT THEM.
THAT'S WHY HELPER T CELL CAN GIVE THE ORDERS...
KILL
MEMORY
KILL
...SO THAT KILLER T CELLS CAN DEFEAT THEM.
KILL
SEE?!
YOU HAVE FRIENDS WHO WORK TOGETHER... AND DO THEIR JOBS WITH PRIDE!

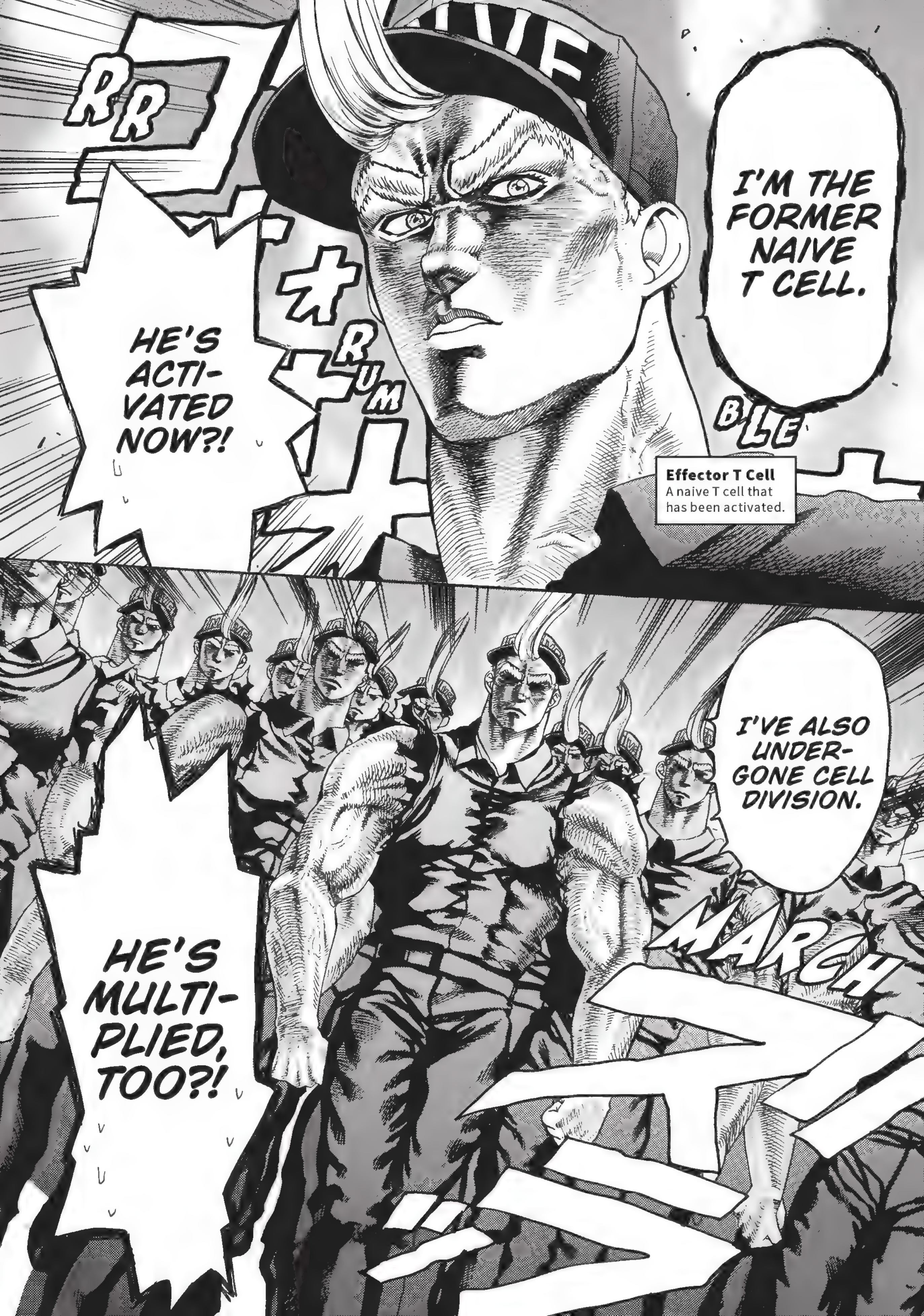

AND YOU KNOW WHAT YOU HAVE TO DO...
DON'T YOU?
SQUEEZE
I... I...
MY JOB IS TO...
GRIT
SHINE
WHOA!
AND ENCOURAGING AND ACTIVATING T CELLS LIKE THIS...
...IS MY JOB. ☆
GLOW

The Dendritic Cells' Power
They can activate naive T Cells.

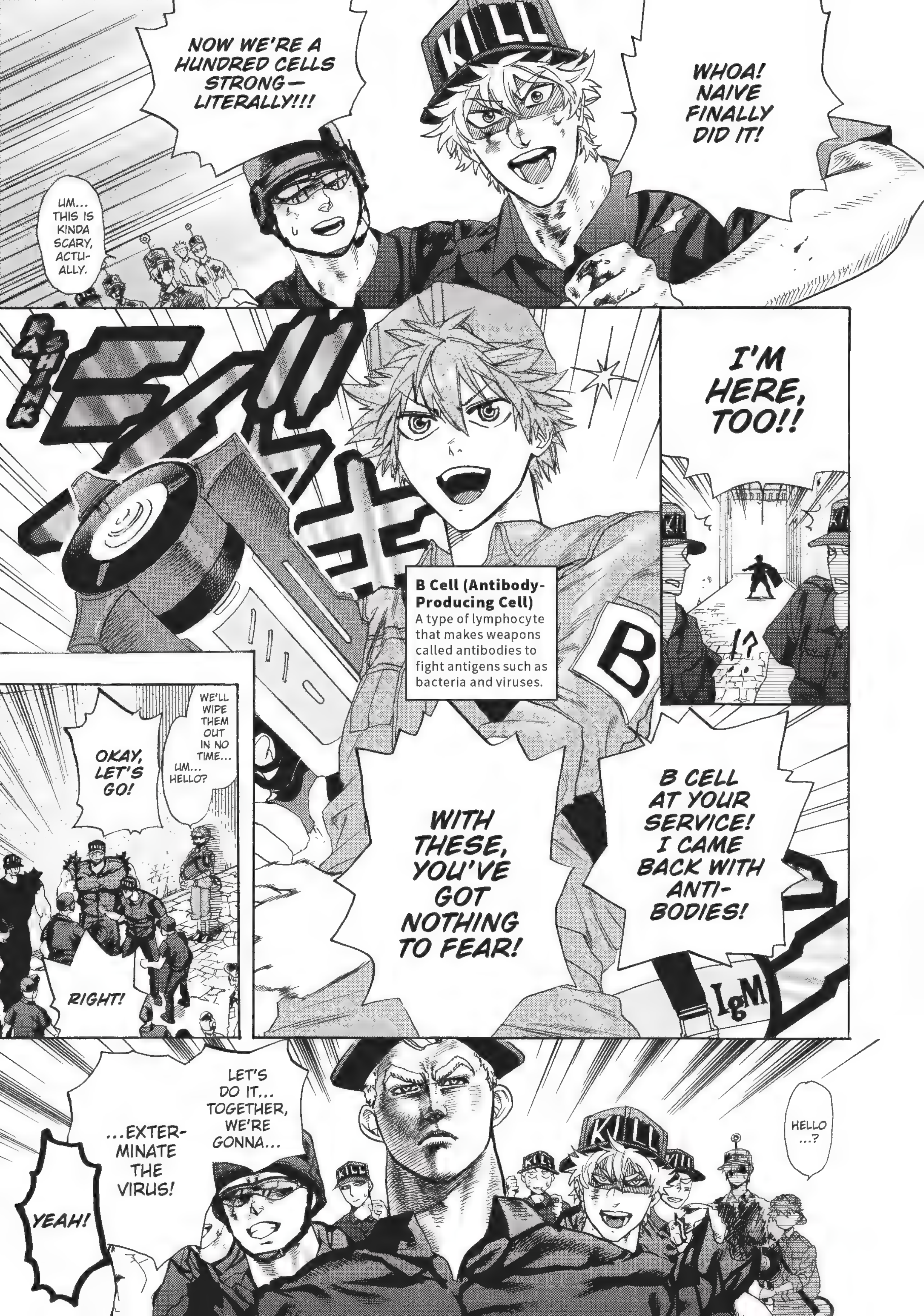

ゴオオオオ
ROOOOAR
CHEEZE
HUFF
HUFF
WHEEZE
HUFF
WHITE BLOOD CELL
CELL
DAMN…
WE'RE NOT MAKING A DENT…
GROOOOOAN
THERE'S… NO END TO THESE THINGS.
LUNG
KSHAAH!
GUH…


WHAM
?!!
ズザアアア
SLIDE
...HUH...?
パラ
CRUMBLE

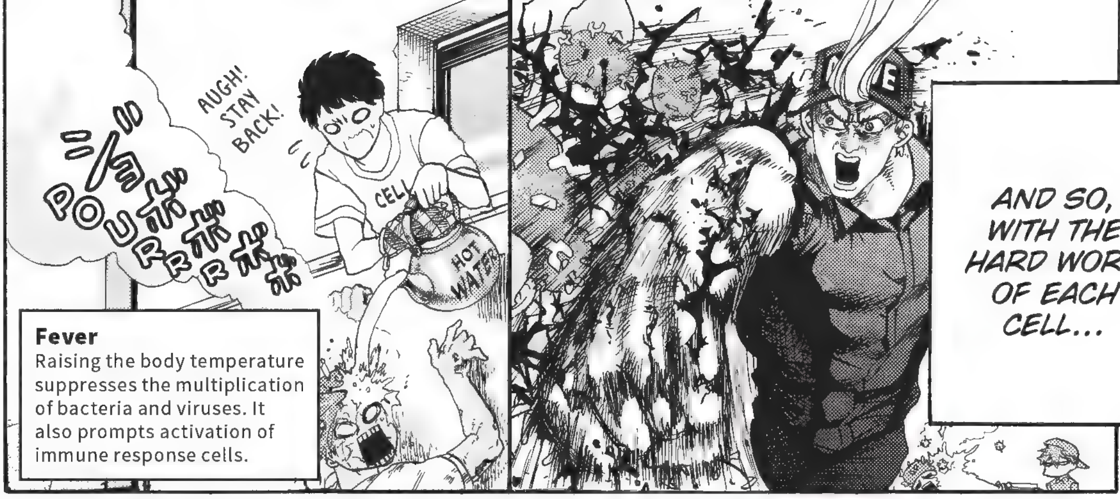

WH—
WHO IS THAT...?
CRUNCH
CRUNCH
CRUNCH
MY FRIENDS... I'M SORRY THAT YOU HAD TO SEE MY SHAMEFUL BEHAVIOR EARLIER.
BUT I WAS ABLE TO OVERCOME THE OLD, WEAK ME...
...AND RETURN HERE, *ACTIVATED.*


I'M THE FORMER NAIVE T CELL.
RRRUMBLE
HE'S ACTIVATED NOW?!
I'VE ALSO UNDERGONE CELL DIVISION.
MARCH
HE'S MULTIPLIED, TOO?!

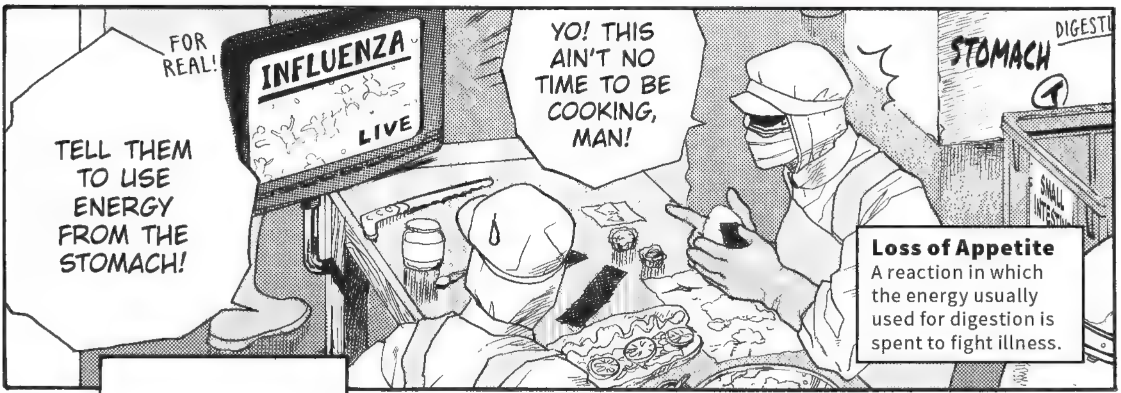
Effector T Cell
A naive T cell that has been activated.


WHOA! NAIVE FINALLY DID IT!
NOW WE'RE A HUNDRED CELLS STRONG—LITERALLY!!!
UM... THIS IS KINDA SCARY, ACTUALLY.
I'M HERE, TOO!!
!?
KAHINK
B CELL AT YOUR SERVICE! I CAME BACK WITH ANTIBODIES!
WITH THESE, YOU'VE GOT NOTHING TO FEAR!
IgM
WE'LL WIPE THEM OUT IN NO TIME...
UM... HELLO?
OKAY, LET'S GO!
RIGHT!
HELLO ...?
LET'S DO IT... TOGETHER, WE'RE GONNA...
...EXTERMINATE THE VIRUS!
YEAH!

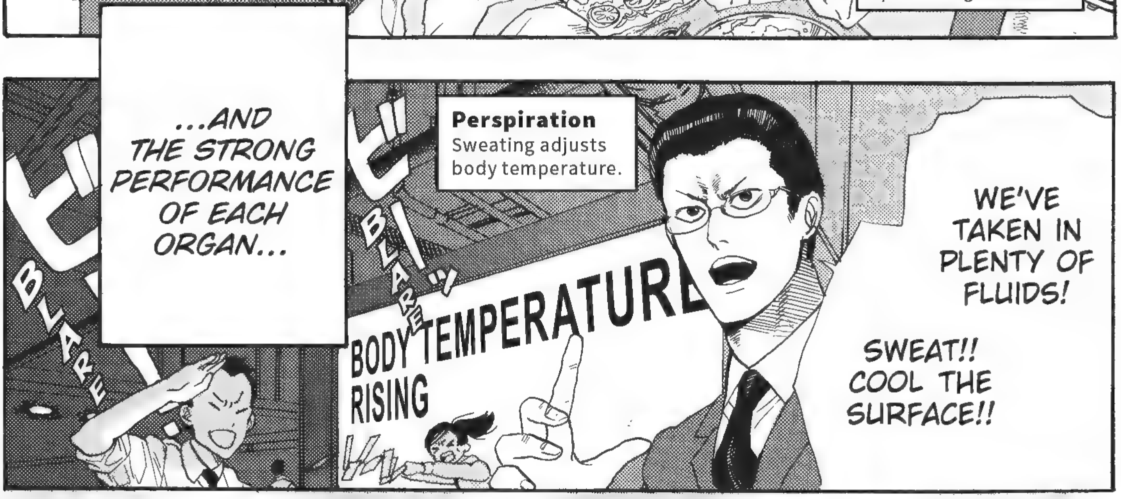
B Cell (Antibody-Producing Cell)
A type of lymphocyte that makes weapons called antibodies to fight antigens such as bacteria and viruses.


AND SO, WITH THE HARD WORK OF EACH CELL...
AUGH! STAY BACK!
POURRR
CELL
HOT WATER

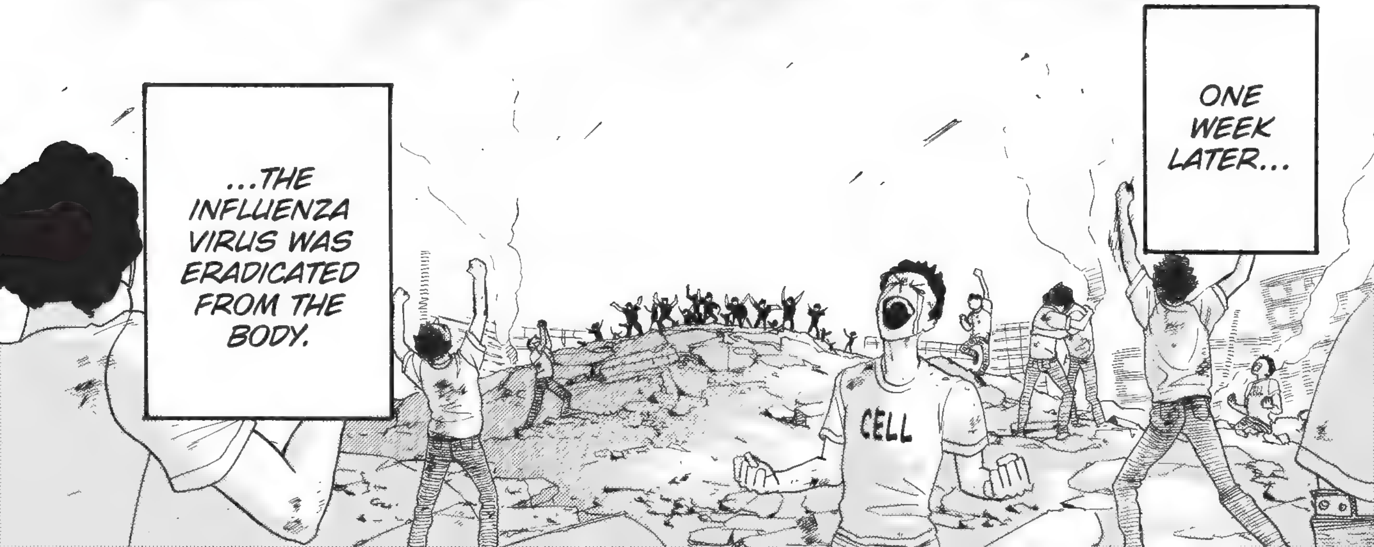
Fever
Raising the body temperature suppresses the multiplication of bacteria and viruses. It also prompts activation of immune response cells.

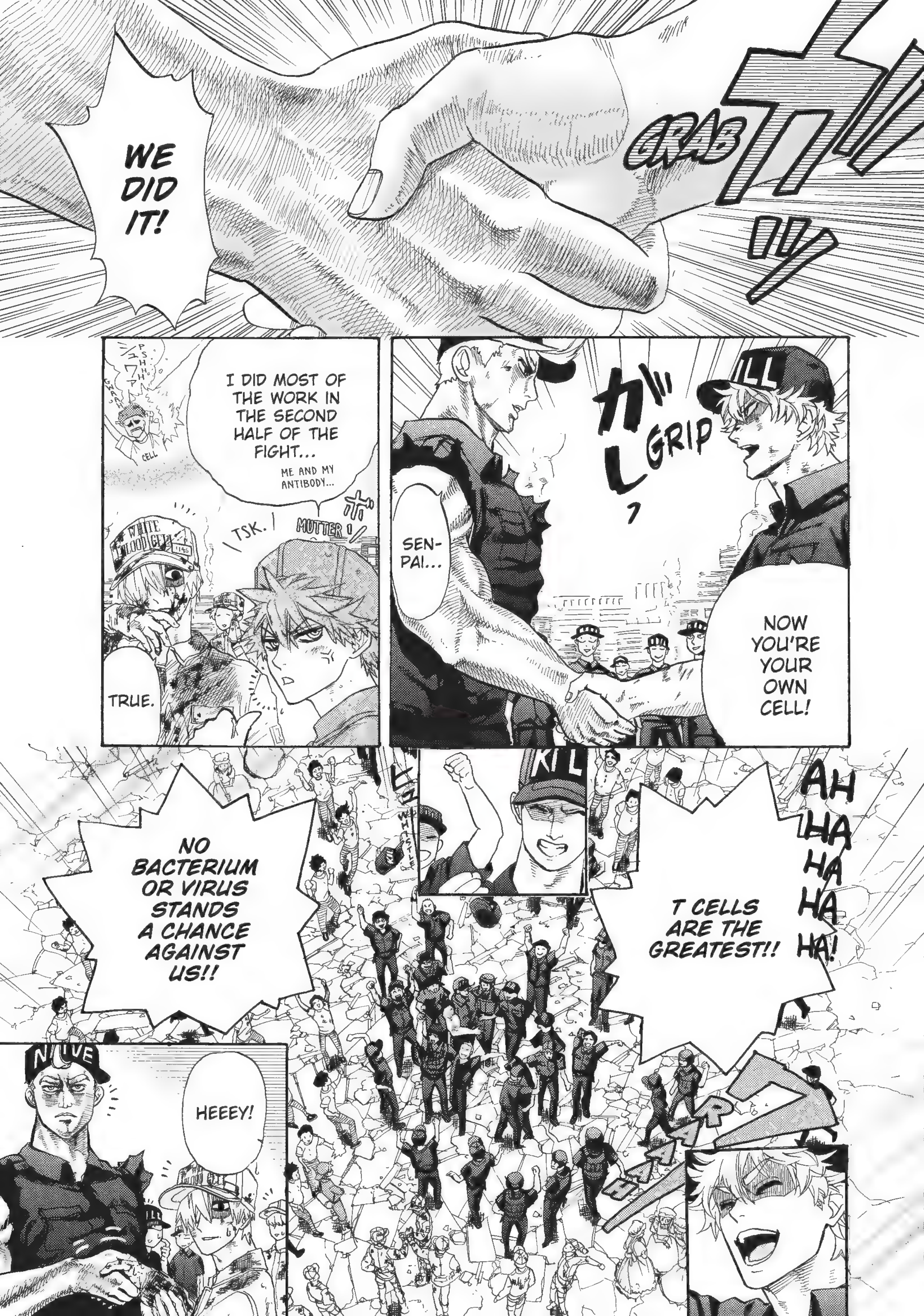

STOMACH
DIGESTI
SMALL INTESTI
YO! THIS AIN'T NO TIME TO BE COOKING, MAN!
INFLUENZA
LIVE
FOR REAL!
TELL THEM TO USE ENERGY FROM THE STOMACH!

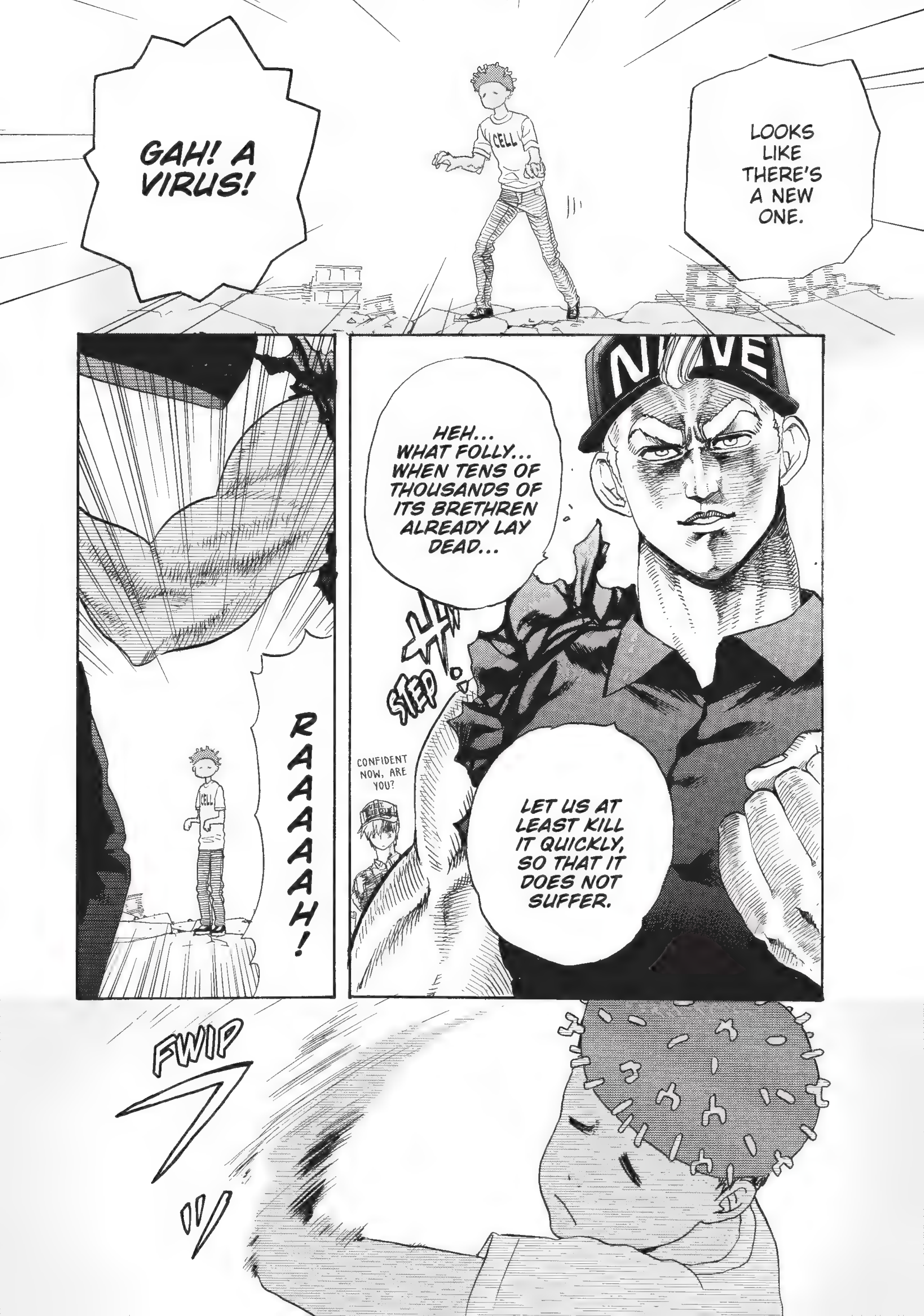
Loss of Appetite
A reaction in which the energy usually used for digestion is spent to fight illness.

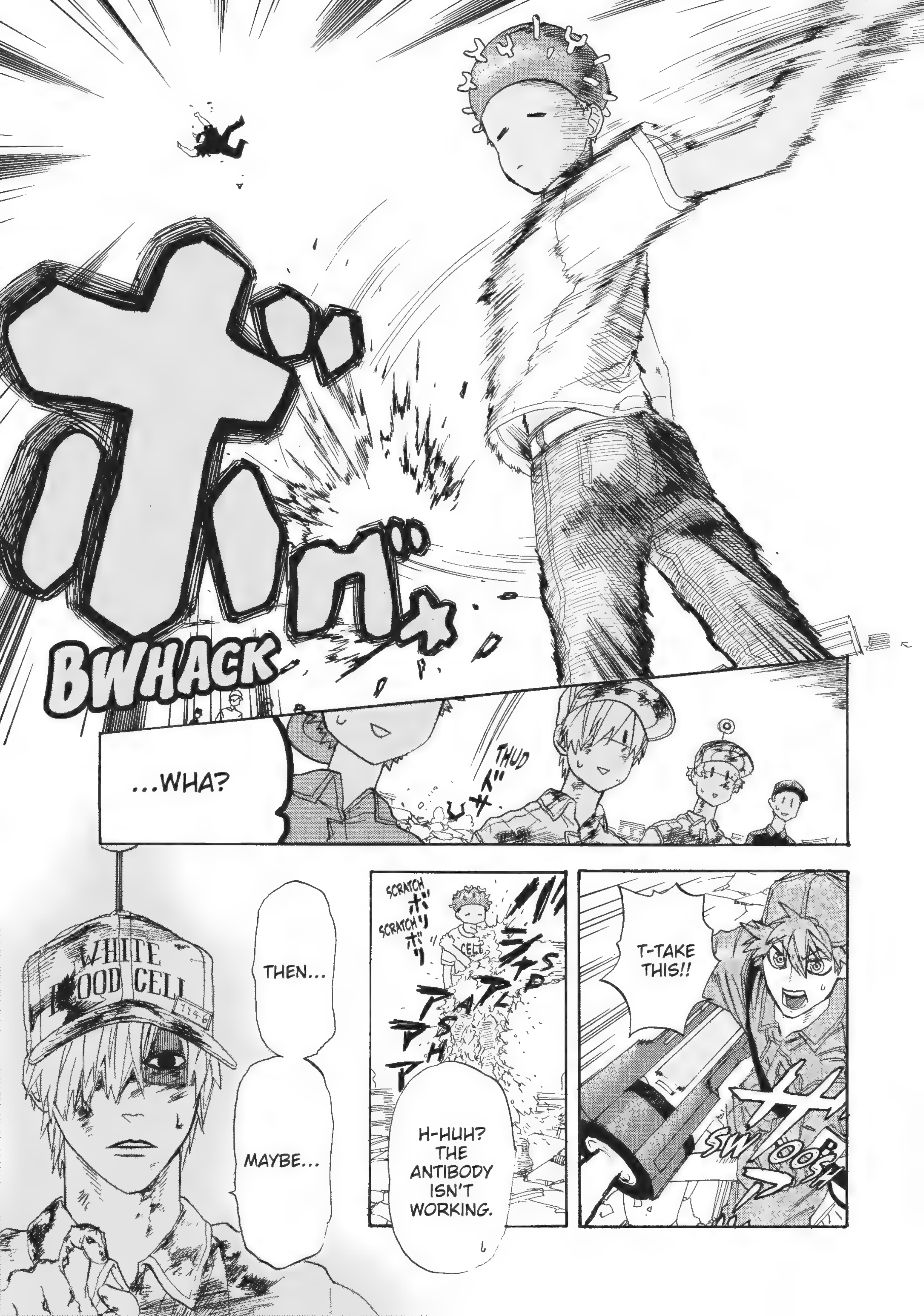

WE'VE TAKEN IN PLENTY OF FLUIDS!
SWEAT!! COOL THE SURFACE!!
BODY TEMPERATURE RISING
BLARE
BLARE
...AND THE STRONG PERFORMANCE OF EACH ORGAN...

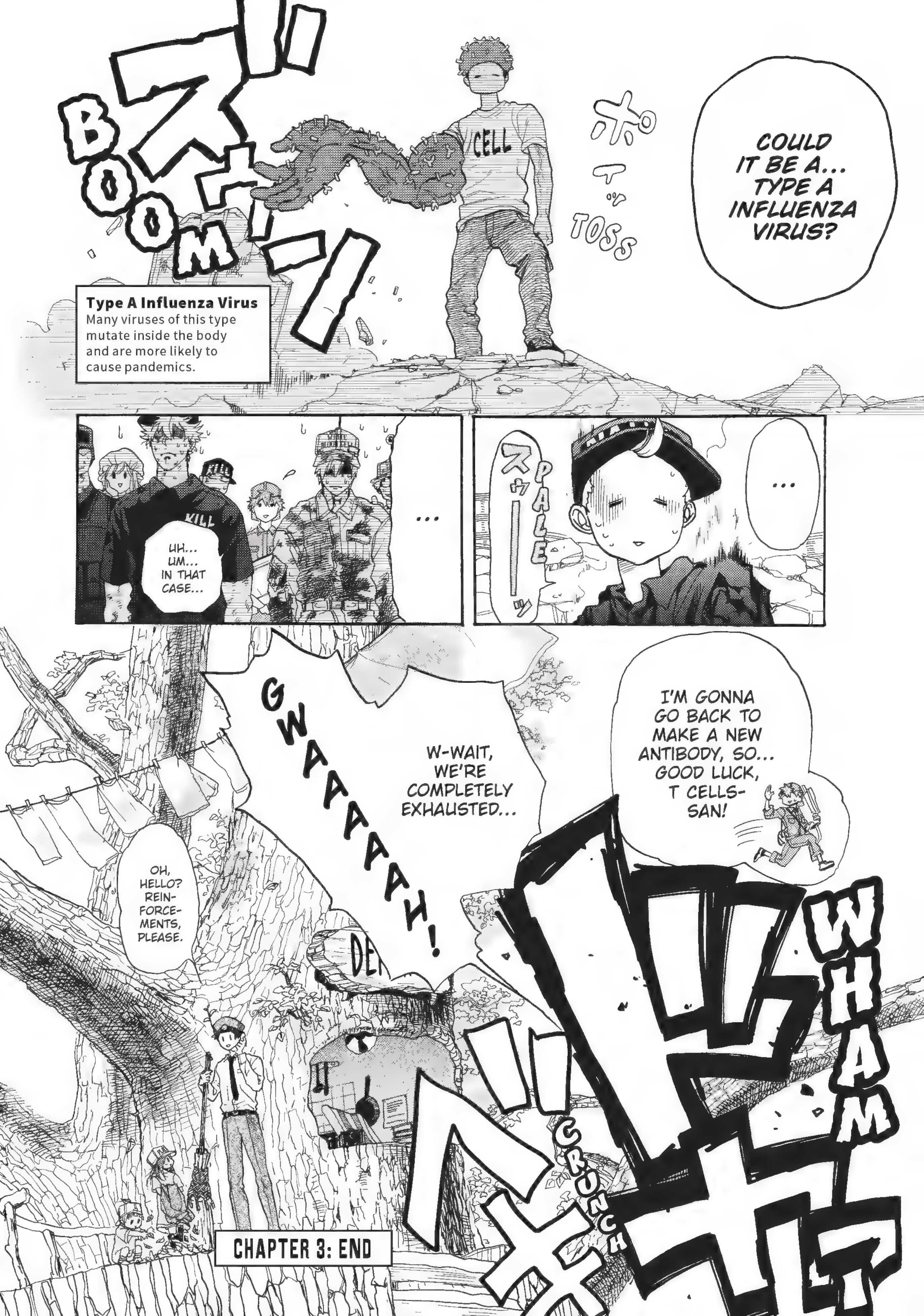
Perspiration
Sweating adjusts body temperature.


ONE WEEK LATER...
...THE INFLUENZA VIRUS WAS ERADICATED FROM THE BODY.
CELL


GRAB
WE DID IT!
ガシ GRIP
SEN-PAI...
NOW YOU'RE YOUR OWN CELL!
KILL
I DID MOST OF THE WORK IN THE SECOND HALF OF THE FIGHT...
ME AND MY ANTIBODY...
PSHHH
GWAAH
CELL
MUTTER
TSK.
WHITE BLOOD CELL
1146
TRUE.
AH HA HA HA HA HA!
T CELLS ARE THE GREATEST!!
KILL
WHISTLE
NO BACTERIUM OR VIRUS STANDS A CHANCE AGAINST US!!
HAAAR
NAIVE
HEEEY!


LOOKS LIKE THERE'S A NEW ONE.
GAH! A VIRUS!
CELL
HEH... WHAT FOLLY... WHEN TENS OF THOUSANDS OF ITS BRETHREN ALREADY LAY DEAD...
STEP
LET US AT LEAST KILL IT QUICKLY, SO THAT IT DOES NOT SUFFER.
CONFIDENT NOW, ARE YOU?
RAAAAAAH!
CELL
FWIP


ドガッ
BWHACK
...WHA?
THUD
T-TAKE THIS!!
SWOOSH
サッ
SCRATCH
ボリ
SCRATCH
ボリ
CELL
SPLASH
H-HUH? THE ANTIBODY ISN'T WORKING.
WHITE
OOD CELL
1146
THEN...
MAYBE...

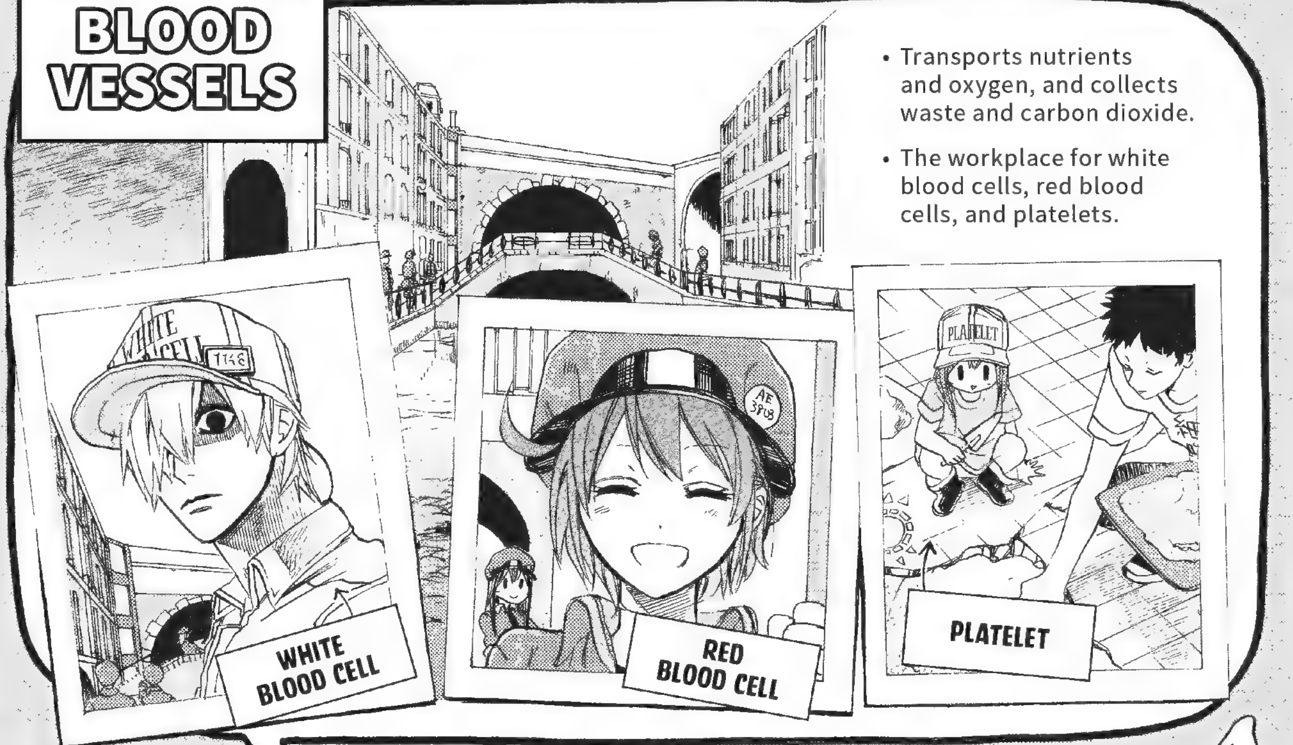

COULD IT BE A... TYPE A INFLUENZA VIRUS?
ポイッ
TOSS
CELL
ズドーン
BOOM
...
スゥーッ
PALE
...
UH... UM... IN THAT CASE...
KILL
I'M GONNA GO BACK TO MAKE A NEW ANTIBODY, SO... GOOD LUCK, T CELLS-SAN!
W-WAIT, WE'RE COMPLETELY EXHAUSTED...
GWAAAAAAH!
OH, HELLO? REINFORCEMENTS, PLEASE.
DEN
ドゴォ
WHAM
CRUNCH

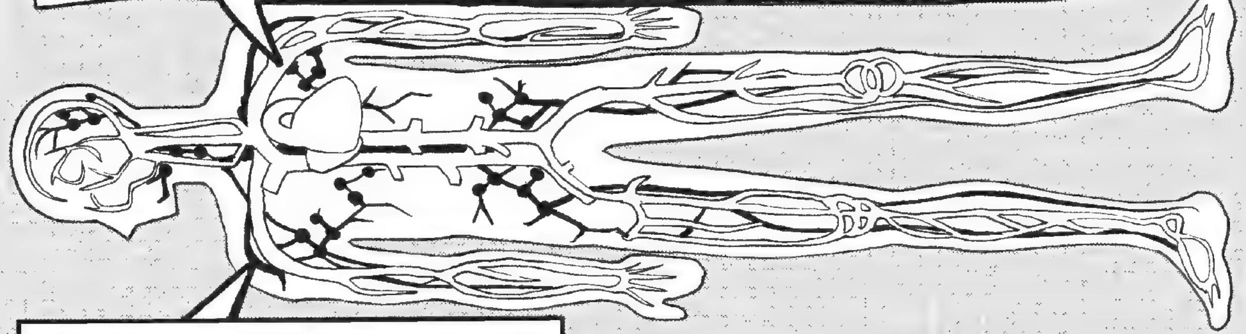
Type A Influenza Virus
Many viruses of this type mutate inside the body and are more likely to cause pandemics.

CHAPTER 3: END

BLOOD VESSELS

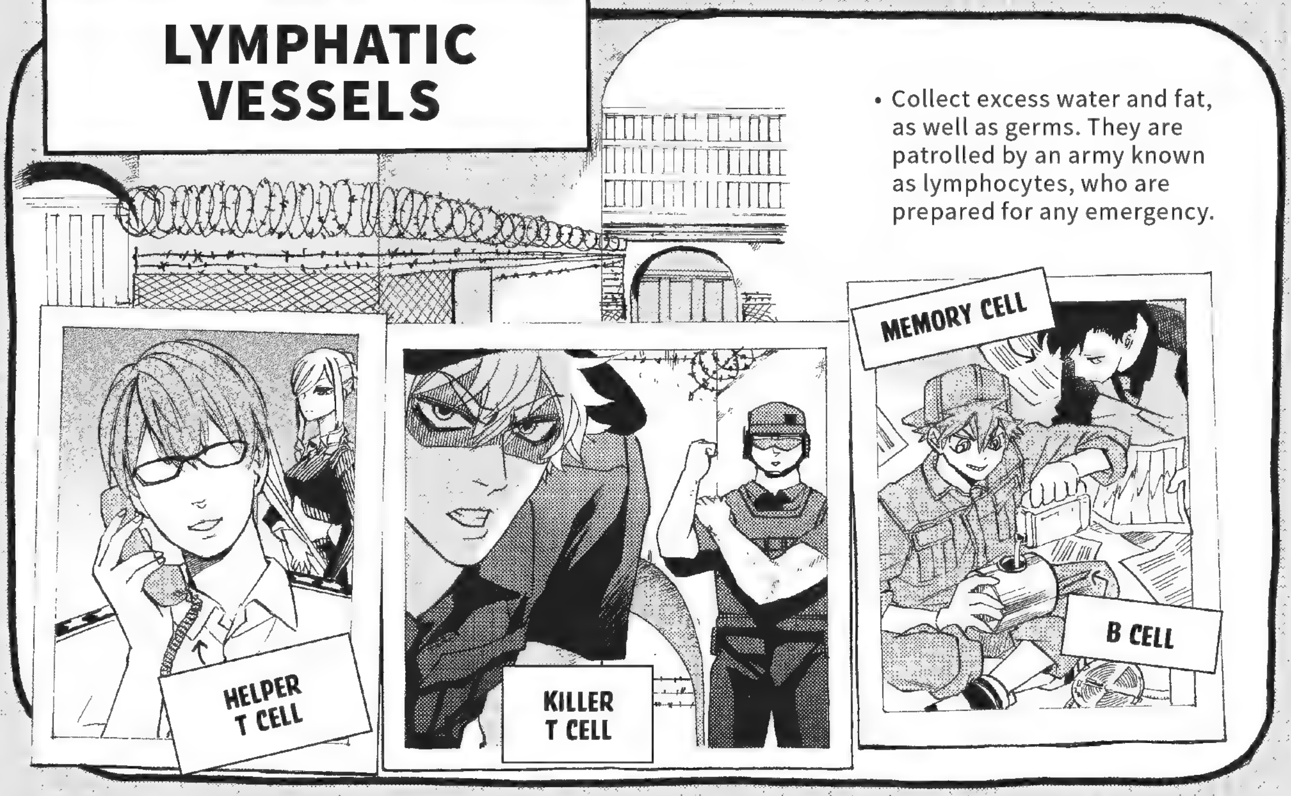
- Transports nutrients and oxygen, and collects waste and carbon dioxide.
- The workplace for white blood cells, red blood cells, and platelets.


WHITE CELL
1146
WHITE BLOOD CELL
AE 3803
RED BLOOD CELL
PLATELET
PLATELET

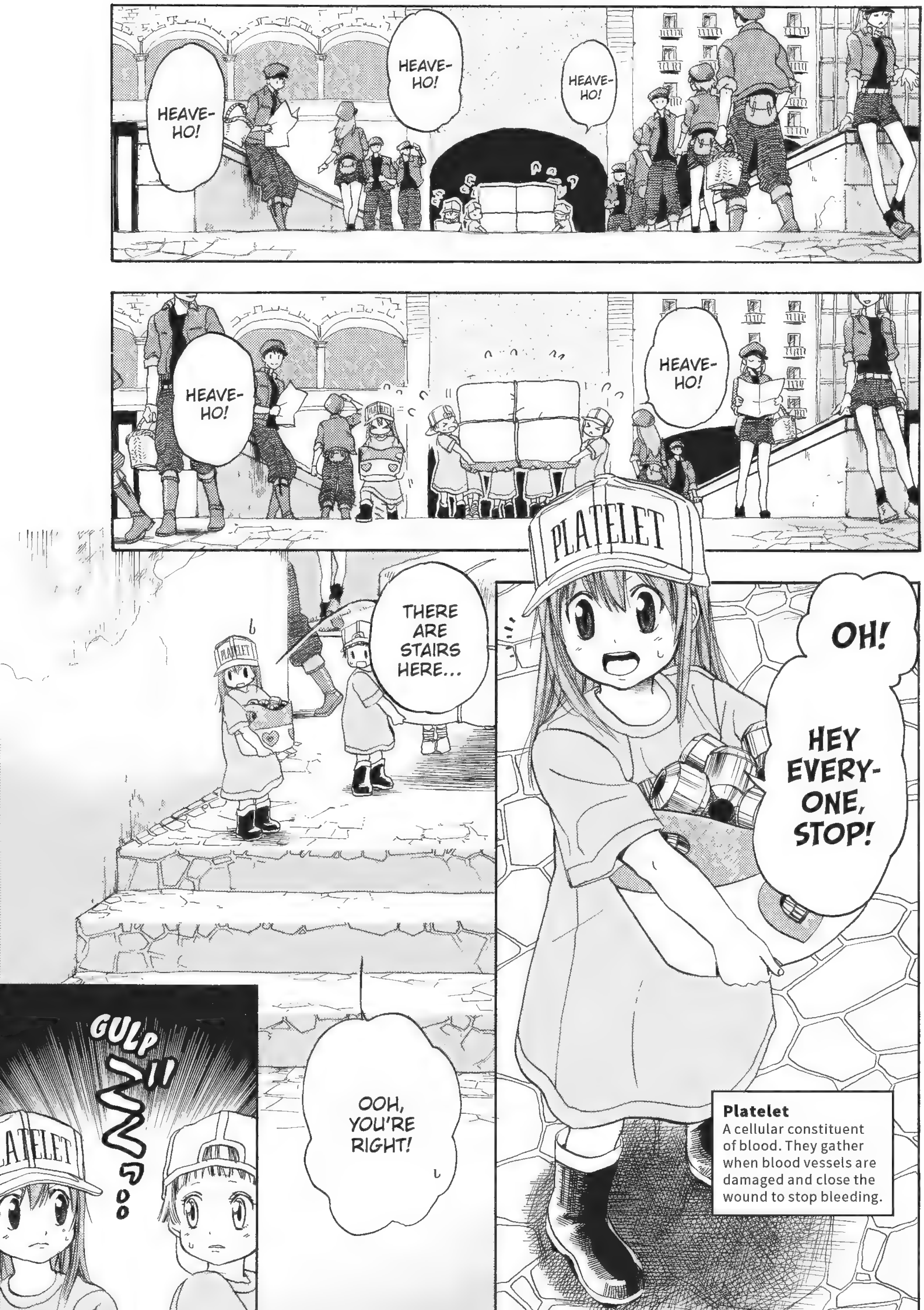


LYMPHATIC VESSELS

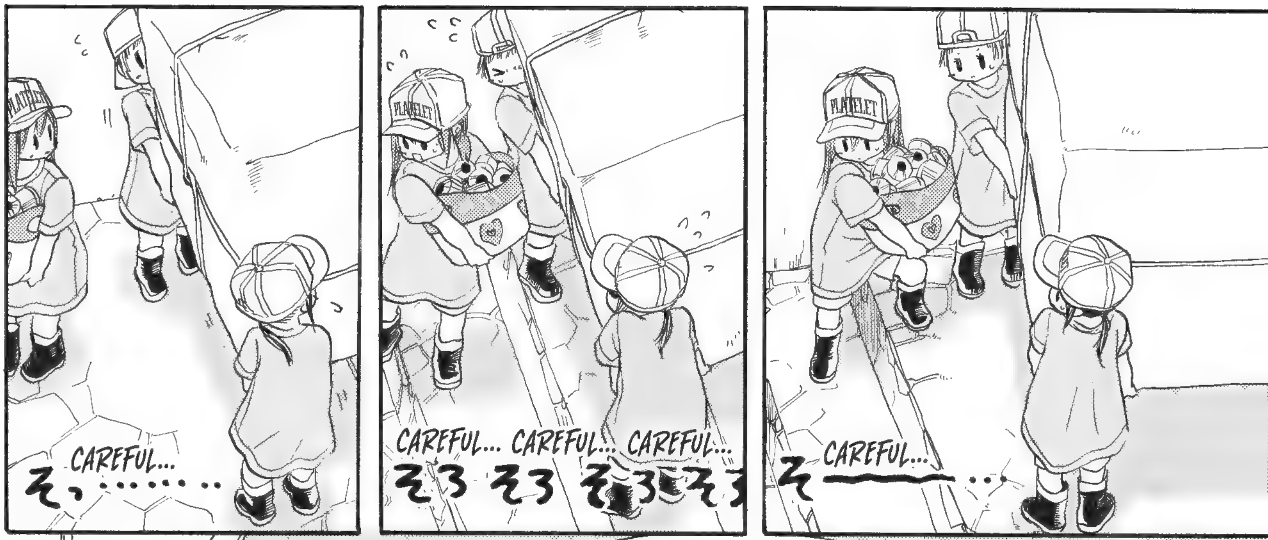
- Collect excess water and fat, as well as germs. They are patrolled by an army known as lymphocytes, who are prepared for any emergency.


HELPER T CELL
KILLER T CELL
MEMORY CELL
B CELL

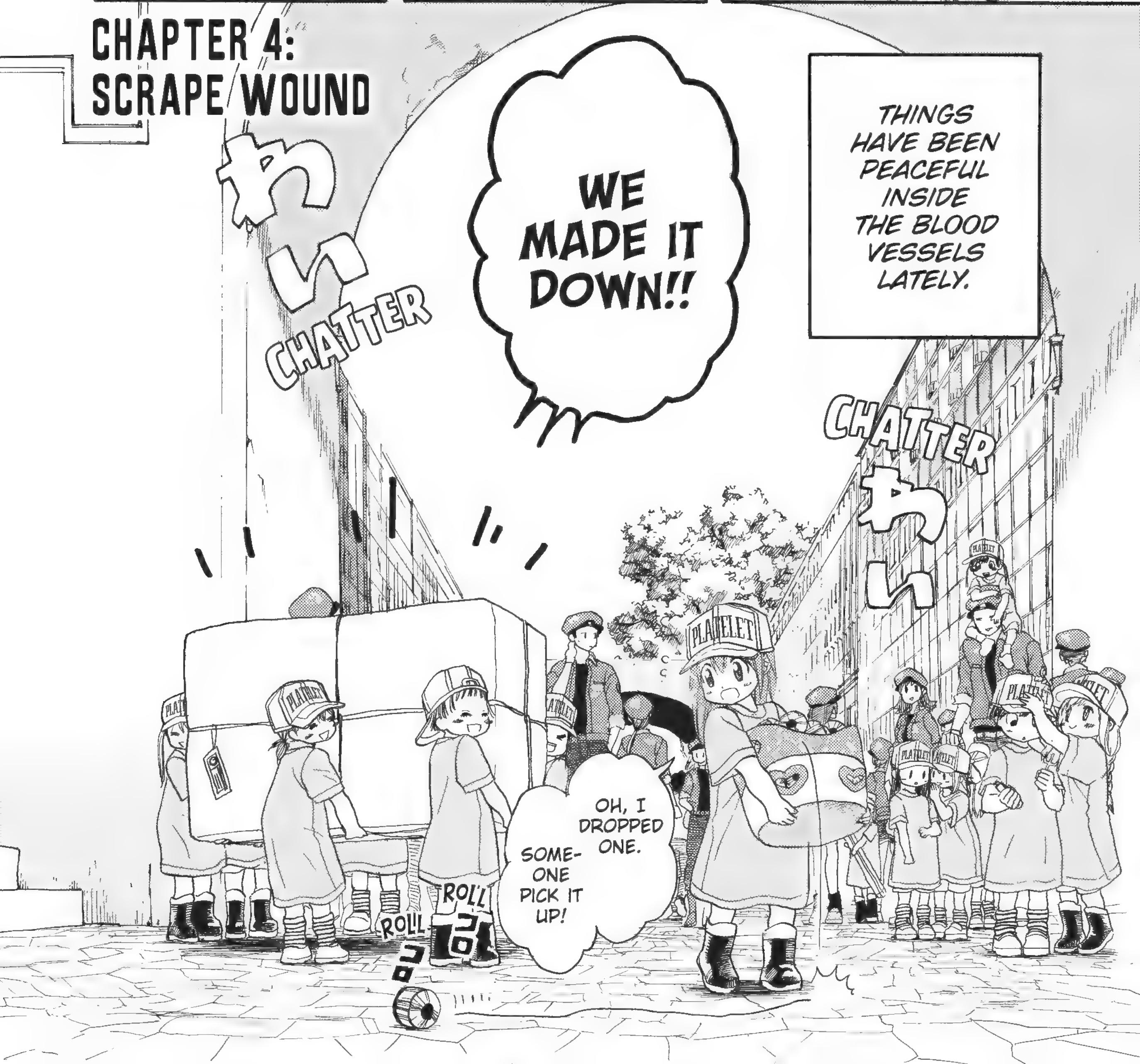
Cells at Work!
はたらく細胞

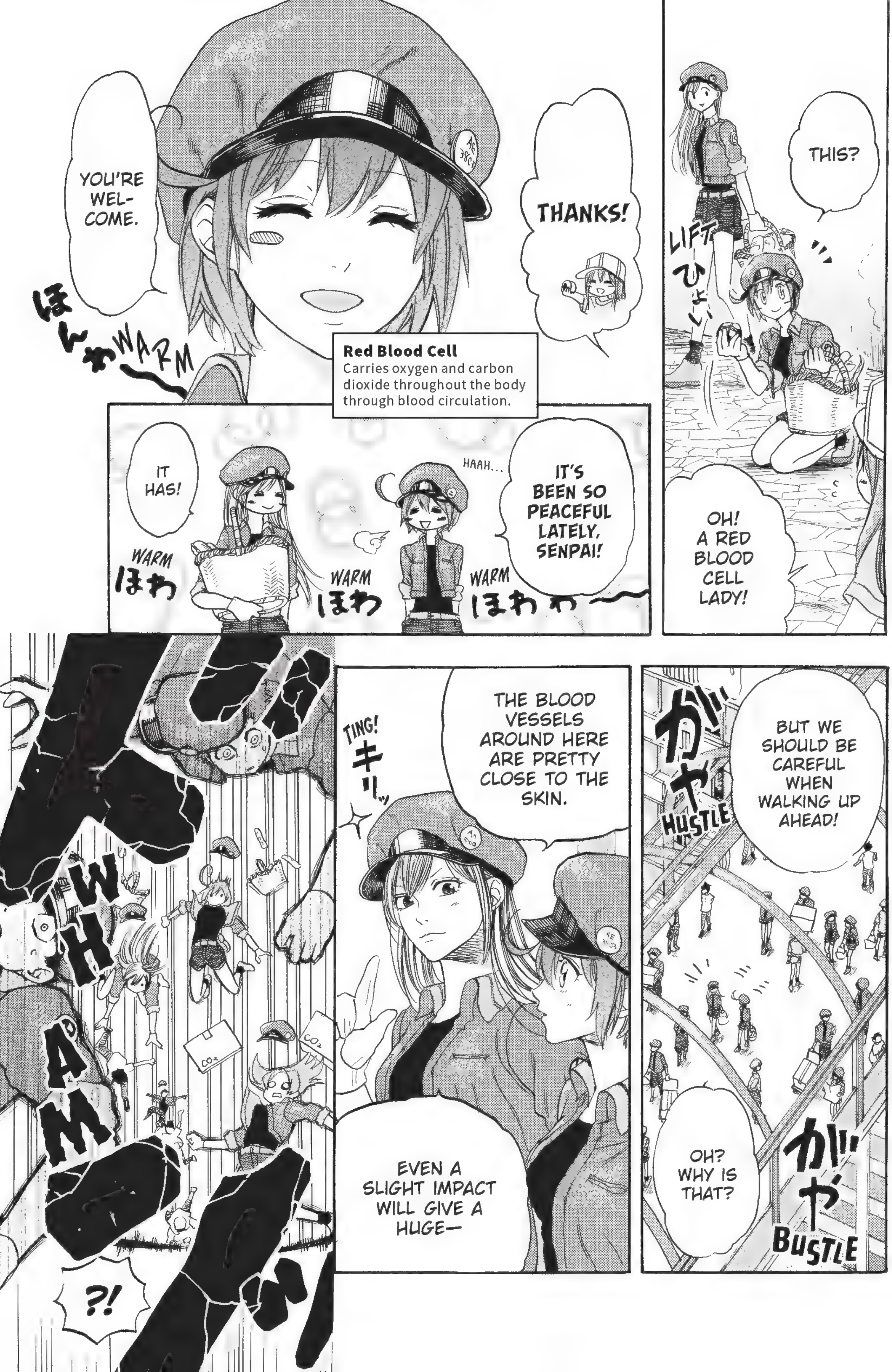

HEAVE-HO!
HEAVE-HO!
HEAVE-HO!
HEAVE-HO!
HEAVE-HO!
PLATELET
OH!
HEY EVERYONE, STOP!
THERE ARE STAIRS HERE...
OOH, YOU'RE RIGHT!
GULP

Platelet
A cellular constituent of blood. They gather when blood vessels are damaged and close the wound to stop bleeding.

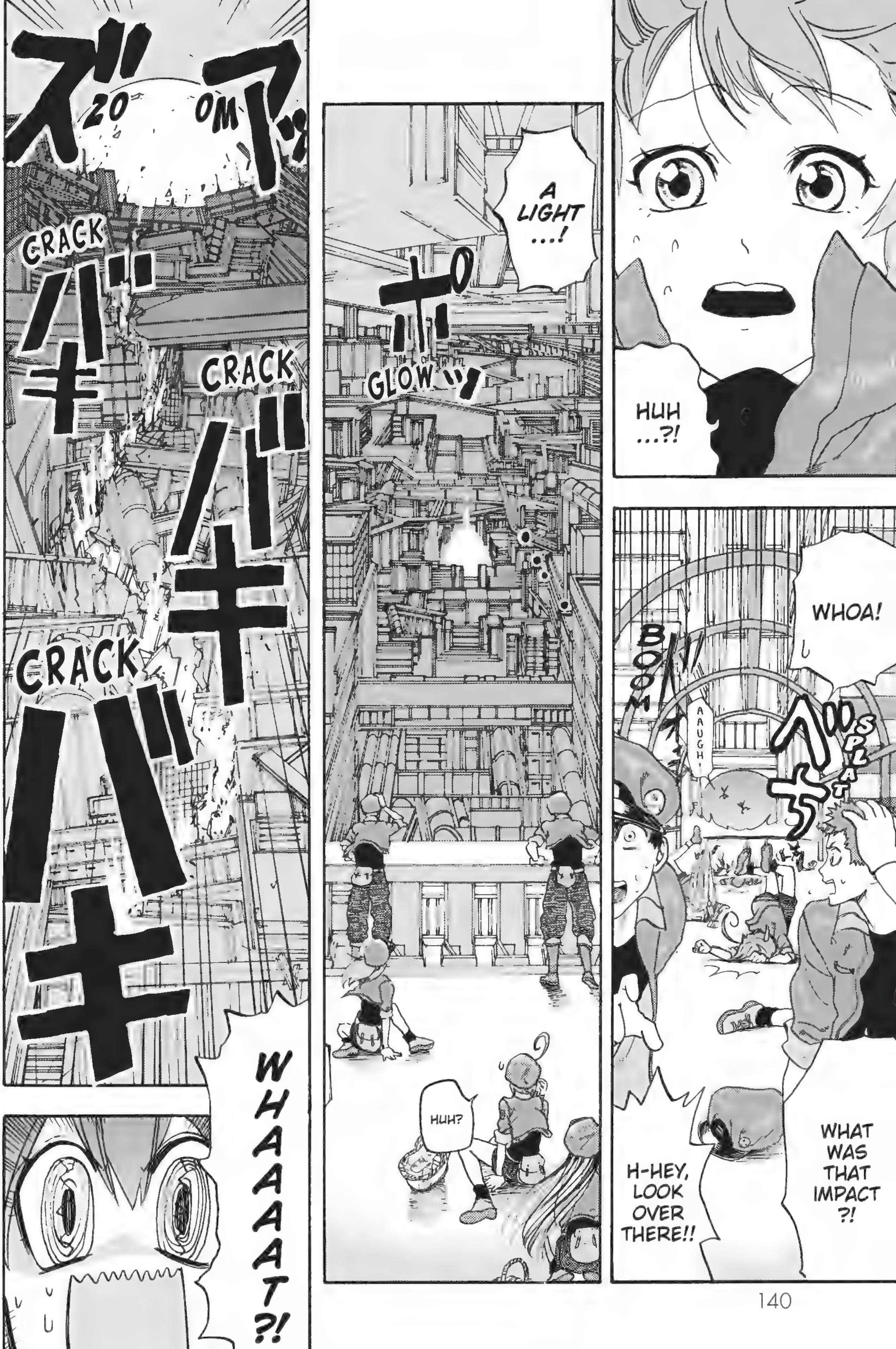

CAREFUL...
そ——……
CAREFUL... CAREFUL... CAREFUL...
そろ そろ そろ そろ
CAREFUL...
そっ………

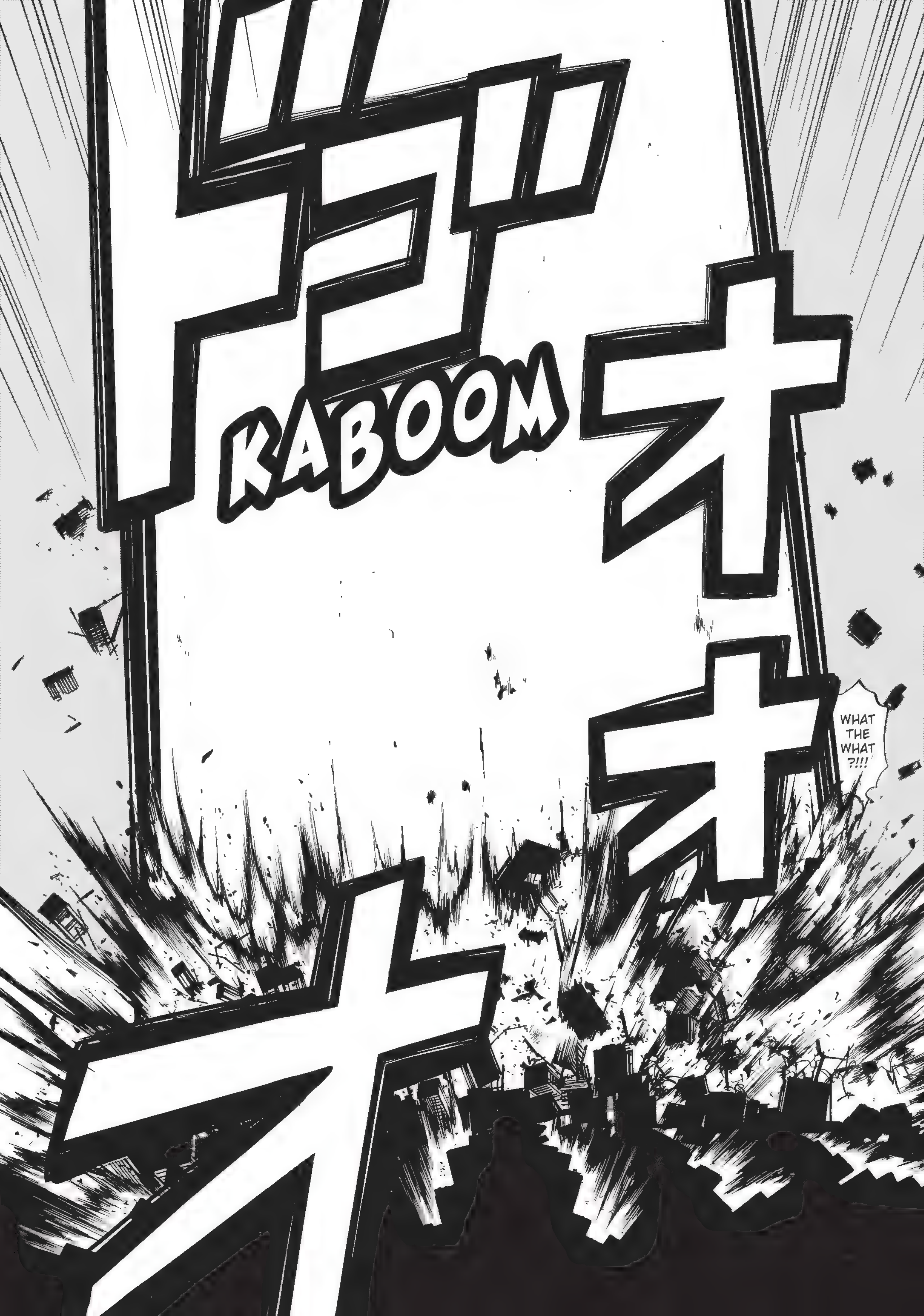
CHAPTER 4: SCRAPE WOUND

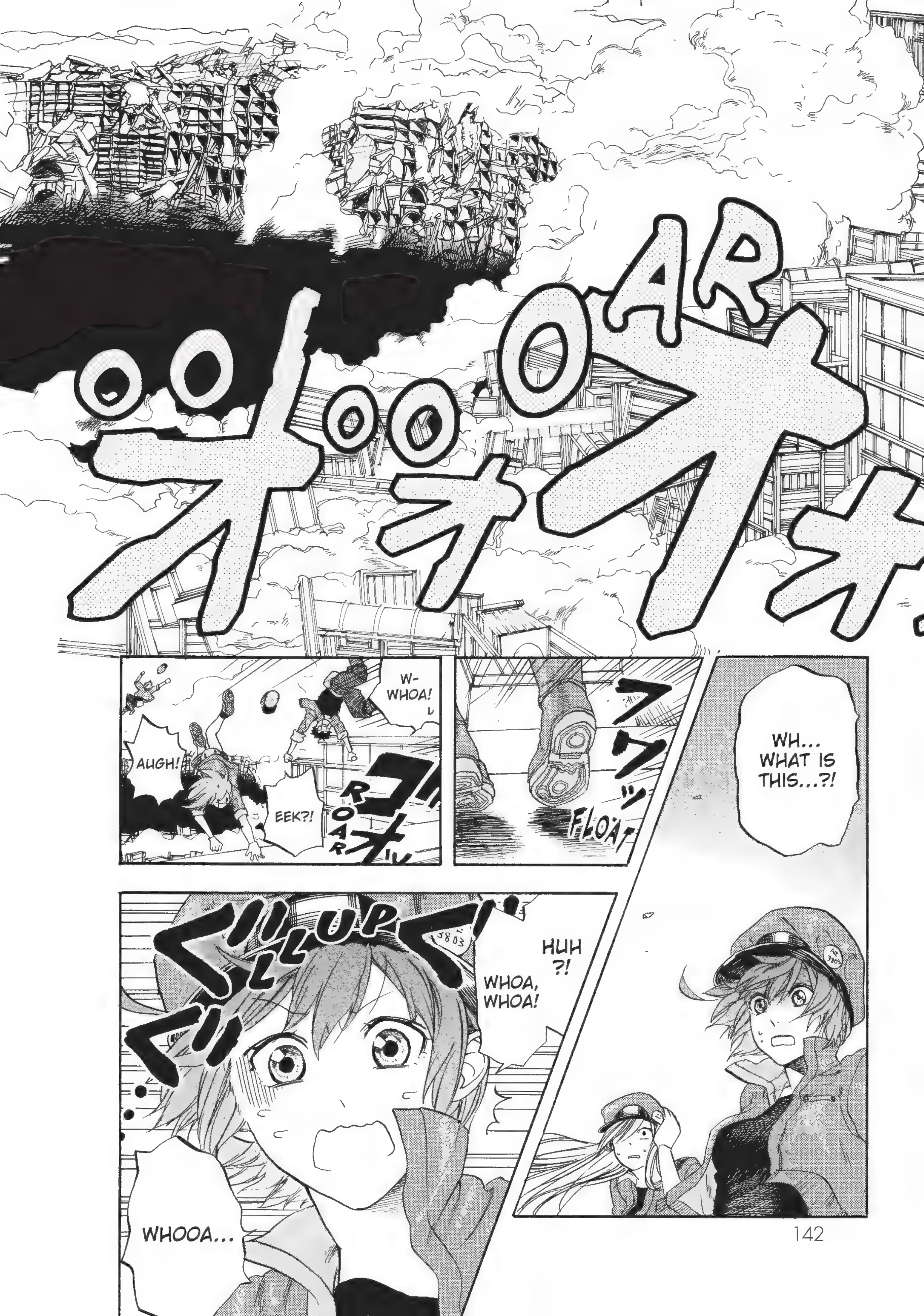

THINGS HAVE BEEN PEACEFUL INSIDE THE BLOOD VESSELS LATELY.
WE MADE IT DOWN!!
CHATTER
わい
CHATTER
わい
OH, I DROPPED ONE. SOME-ONE PICK IT UP!
ROLL
コロ
ROLL
コロ

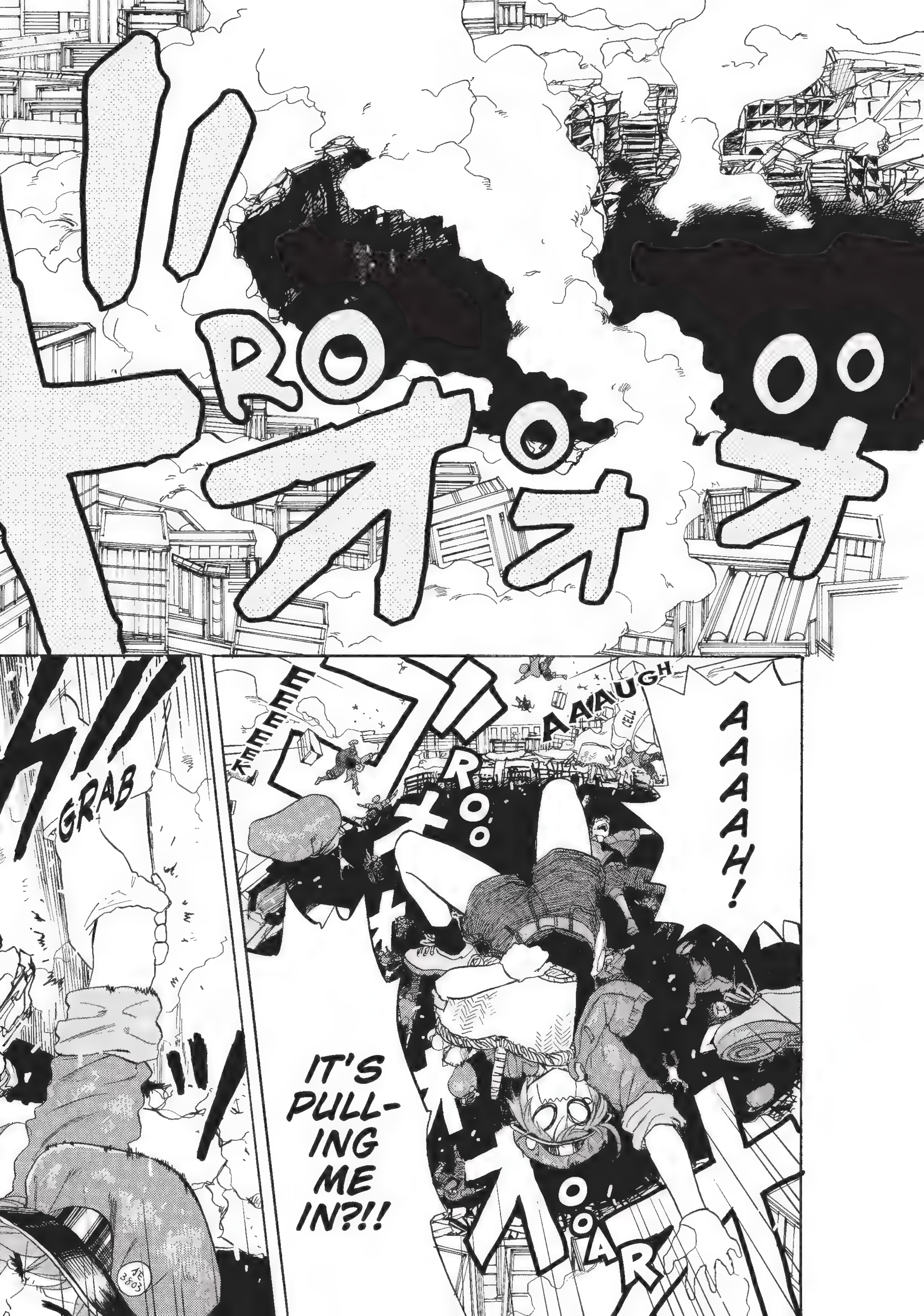

THIS?
LIFT
ひょい
OH! A RED BLOOD CELL LADY!
THANKS!
YOU'RE WEL-COME.
ほんわ
WARM
HAAH...
IT'S BEEN SO PEACEFUL LATELY, SENPAI!
IT HAS!
WARM
ほわ
WARM
ほわ
WARM
ほわわ〜〜
ガヤ
HUSTLE
BUT WE SHOULD BE CAREFUL WHEN WALKING UP AHEAD!
OH? WHY IS THAT?
ガヤ
BUSTLE
TING!
キリッ
THE BLOOD VESSELS AROUND HERE ARE PRETTY CLOSE TO THE SKIN.
EVEN A SLIGHT IMPACT WILL GIVE A HUGE—
WHAM
?!

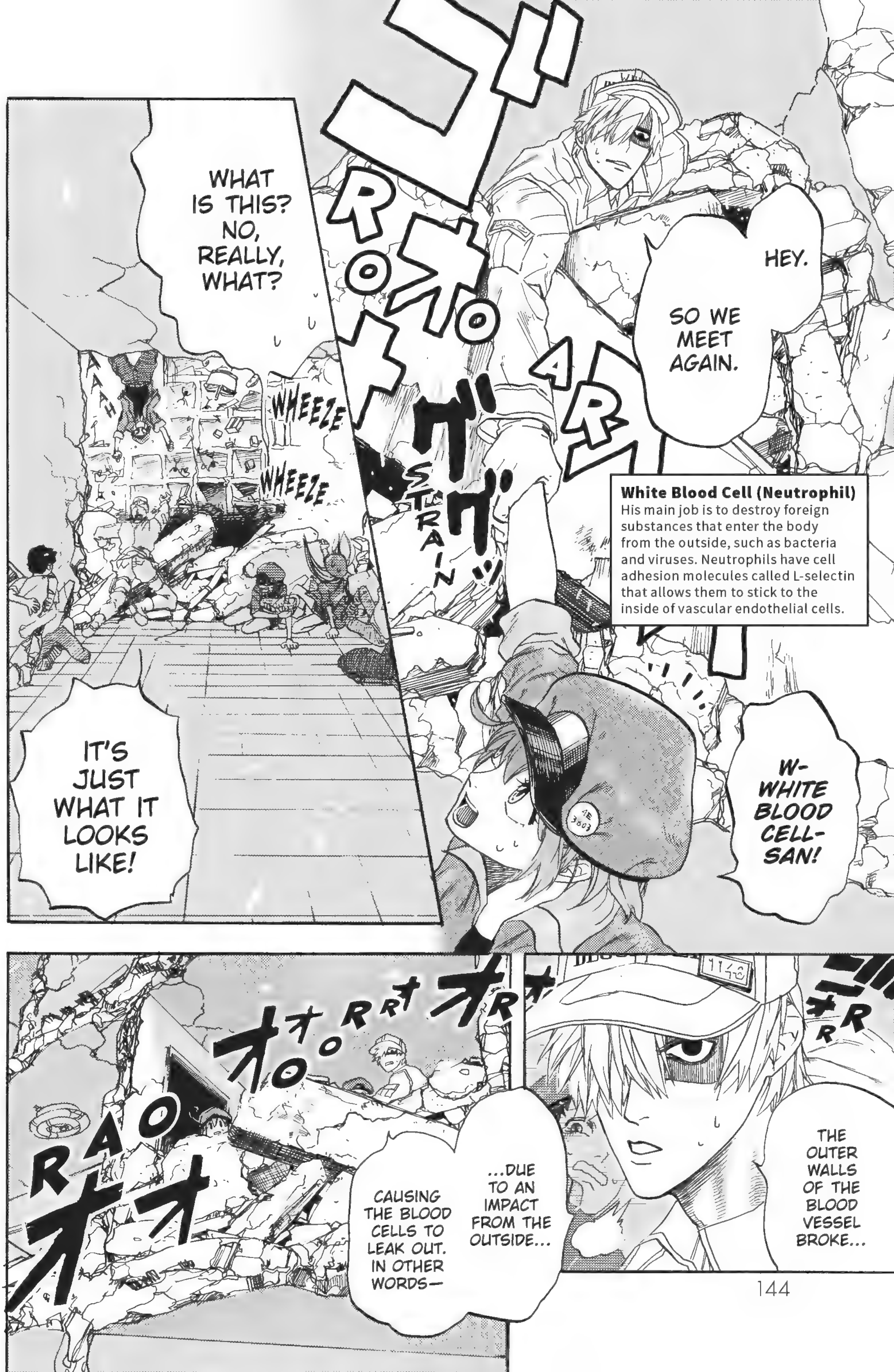
Red Blood Cell
Carries oxygen and carbon dioxide throughout the body through blood circulation.


HUH ...?!
WHOA!
BOOM
AAUGH!
べちゃ SPLAT
WHAT WAS THAT IMPACT ?!
H-HEY, LOOK OVER THERE!!
A LIGHT ...!
ポ
GLOW
HUH?
ズア ZOOM
バキ CRACK
バキ CRACK
バキ CRACK
WHAAAAAAT?!


ドゴォォオ
KABOOM
WHAT THE WHAT ?!!!

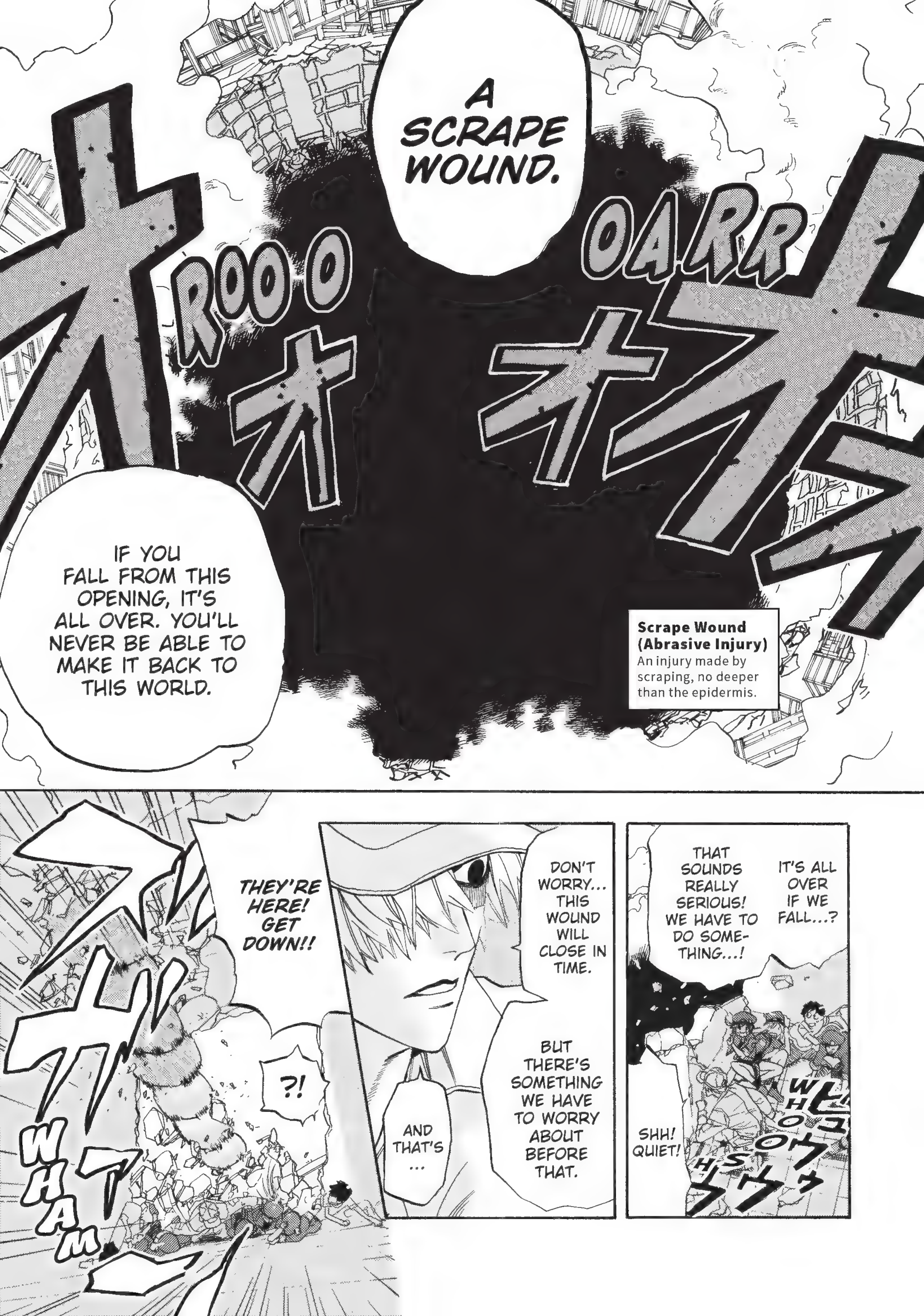

OOOOOAR
オォオオ
フワッ
FLOAT
W-WHOA!
AUGH!
EEK?!
ROAR
WH... WHAT IS THIS...?!
HUH ?!
WHOA, WHOA!
LLLUP
3803
AR 3803
WHOOA...


ROoOo
AAAAAH!
AAAUGH
CELL
EEEEEK
ROoo
OooAR
IT'S PULLING ME IN?!!
GRAB

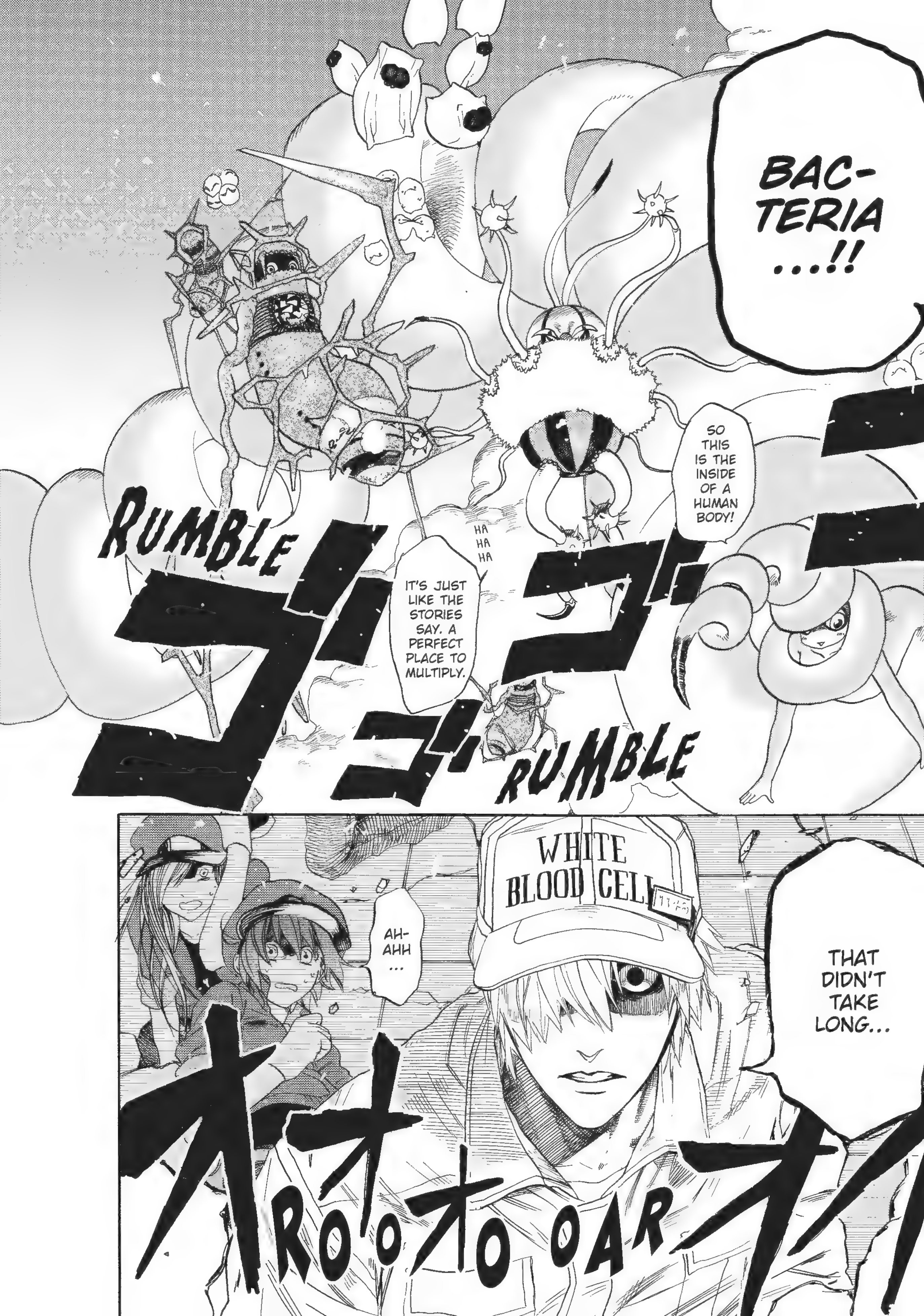


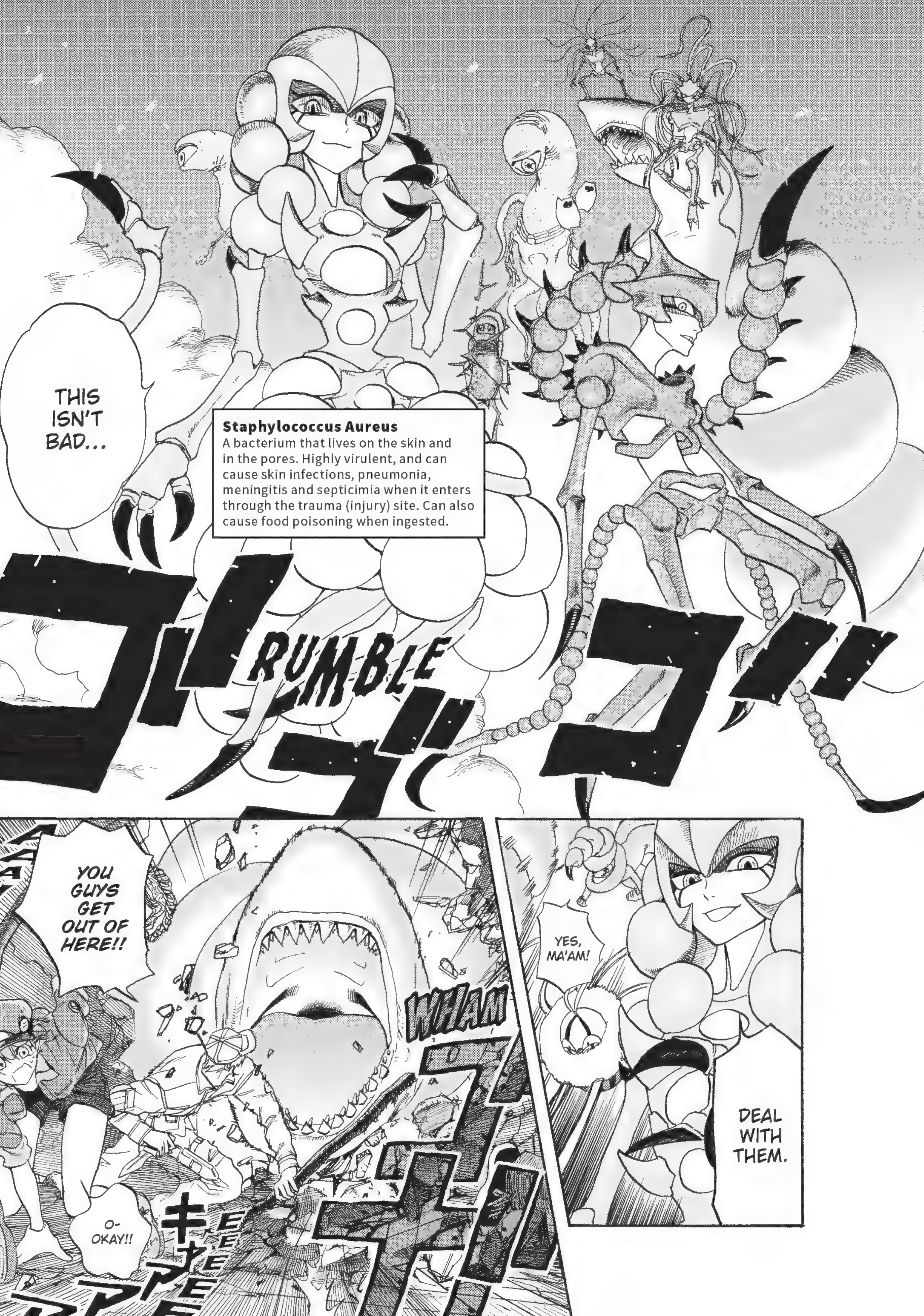
ゴ
ROAR
オオオオ
HEY.
SO WE MEET AGAIN.
ググッ
STRAIN
W- WHITE BLOOD CELL-SAN!
WHAT IS THIS? NO, REALLY, WHAT?
AAH
WHEEZE
WHEEZE
IT'S JUST WHAT IT LOOKS LIKE!
ゴオオオ
ROARR
THE OUTER WALLS OF THE BLOOD VESSEL BROKE...
...DUE TO AN IMPACT FROM THE OUTSIDE...
CAUSING THE BLOOD CELLS TO LEAK OUT. IN OTHER WORDS—
オオオ
ROARRR
RAO
オオ

White Blood Cell (Neutrophil)
His main job is to destroy foreign substances that enter the body from the outside, such as bacteria and viruses. Neutrophils have cell adhesion molecules called L-selectin that allows them to stick to the inside of vascular endothelial cells.


A SCRAPE WOUND.
ROO-O OARR
IF YOU FALL FROM THIS OPENING, IT'S ALL OVER. YOU'LL NEVER BE ABLE TO MAKE IT BACK TO THIS WORLD.
IT'S ALL OVER IF WE FALL...?
THAT SOUNDS REALLY SERIOUS! WE HAVE TO DO SOMETHING...!
SHH! QUIET!
WHOOSH
DON'T WORRY... THIS WOUND WILL CLOSE IN TIME.
BUT THERE'S SOMETHING WE HAVE TO WORRY ABOUT BEFORE THAT.
AND THAT'S ...
THEY'RE HERE! GET DOWN!!
?!
WHAM

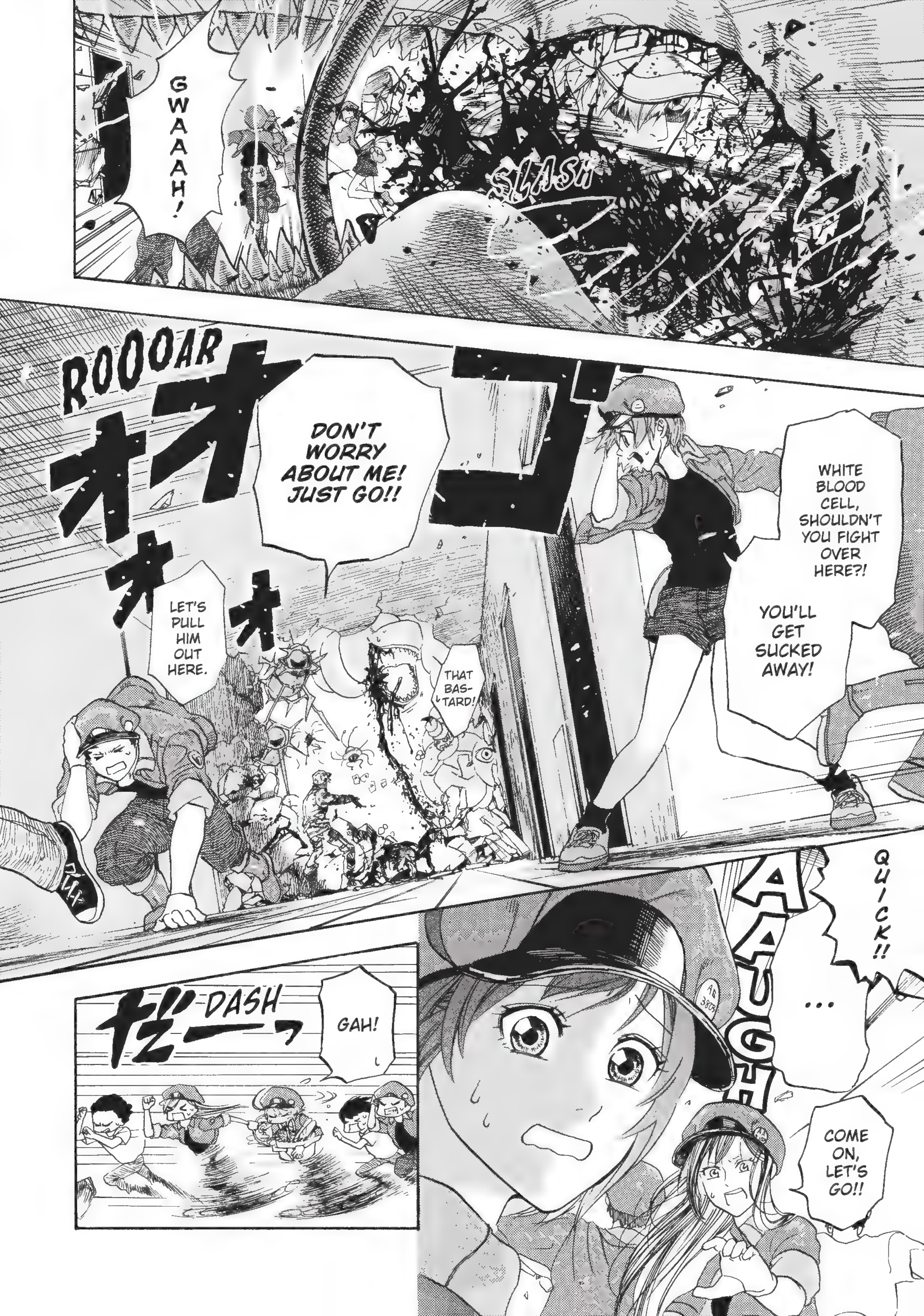
Scrape Wound (Abrasive Injury)
An injury made by scraping, no deeper than the epidermis.

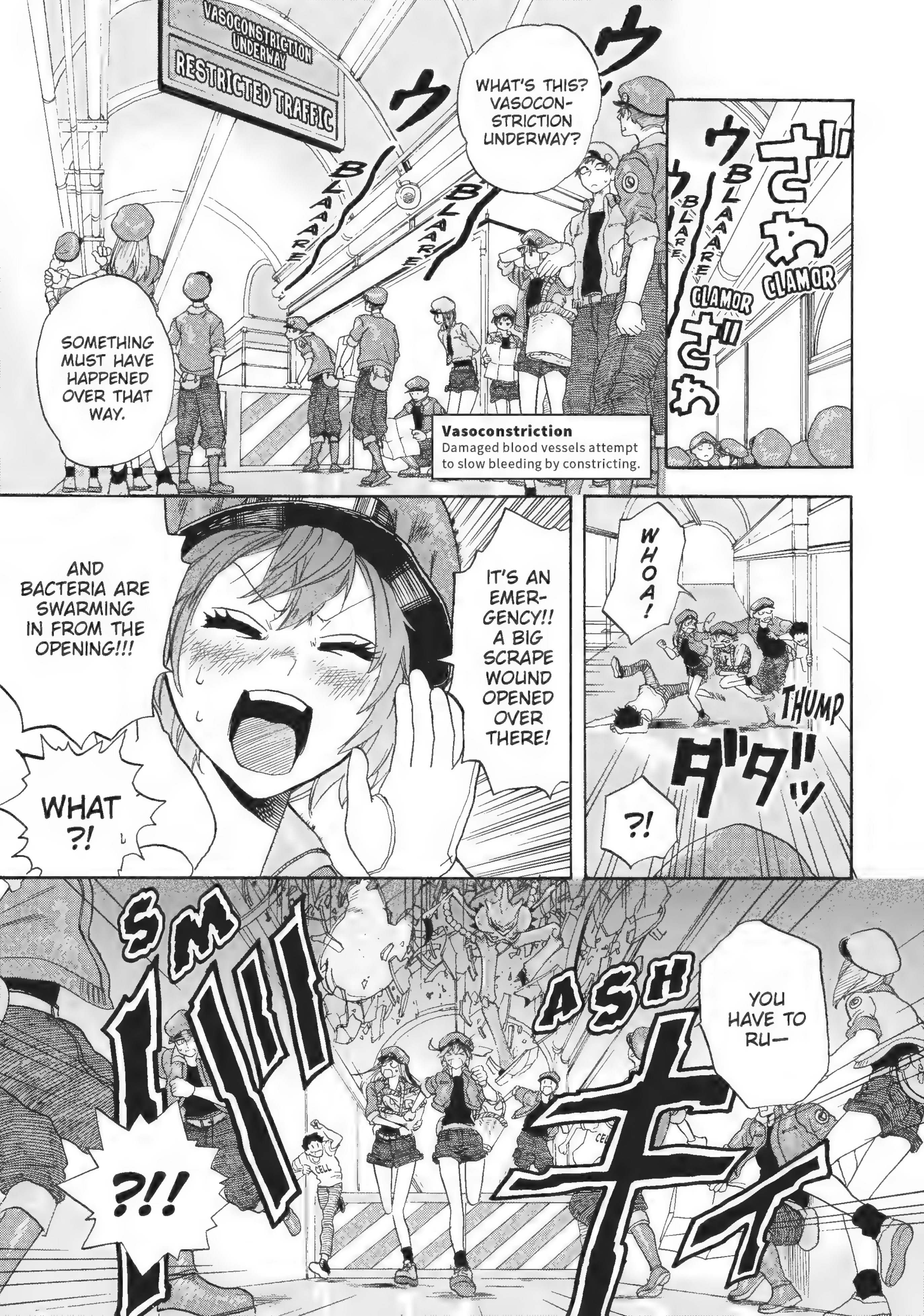

BAC-TERIA...!!
SO THIS IS THE INSIDE OF A HUMAN BODY!
HA HA HA
IT'S JUST LIKE THE STORIES SAY. A PERFECT PLACE TO MULTIPLY.
RUMBLE ゴゴゴ RUMBLE
THAT DIDN'T TAKE LONG...
WHITE BLOOD CELL
AH-AHH...
オオオオ
ROOOOOAR



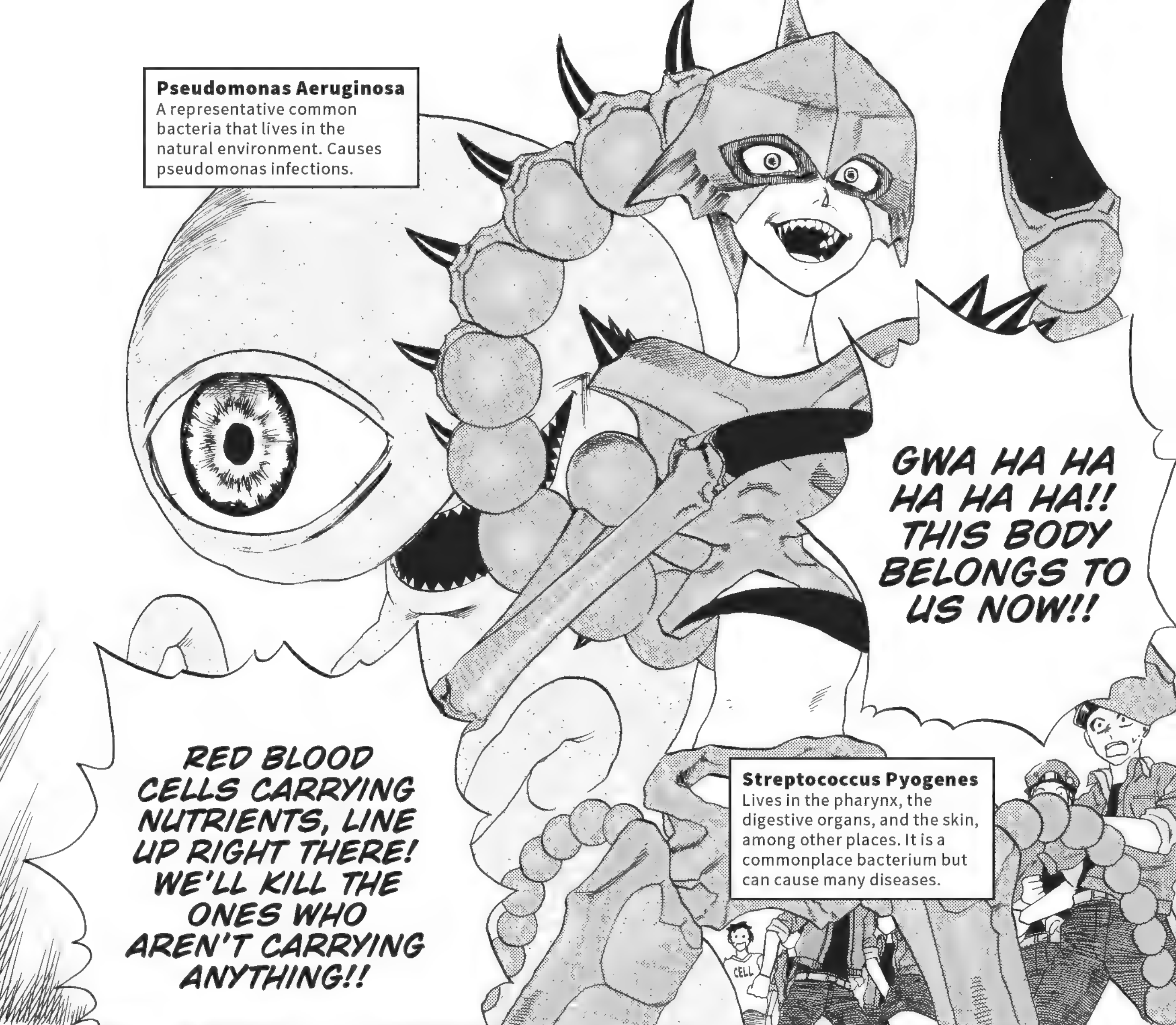
Staphylococcus Aureus
A bacterium that lives on the skin and in the pores. Highly virulent, and can cause skin infections, pneumonia, meningitis and septicimia when it enters through the trauma (injury) site. Can also cause food poisoning when ingested.

THIS ISN'T BAD...
ゴゴゴ
RUMBLE
DEAL WITH THEM.
YES, MA'AM!
YOU GUYS GET OUT OF HERE!!
WHAM
EEEEE
O-OKAY!!


SLASH
GWAAAAH!
WHITE BLOOD CELL, SHOULDN'T YOU FIGHT OVER HERE?!
YOU'LL GET SUCKED AWAY!
DON'T WORRY ABOUT ME! JUST GO!!
ゴオオオオ
ROOOAR
THAT BASTARD!
LET'S PULL HIM OUT HERE.
QUICK!!
AAUGH
AE 3803
...
COME ON, LET'S GO!!
GAH!
ダーッ
DASH

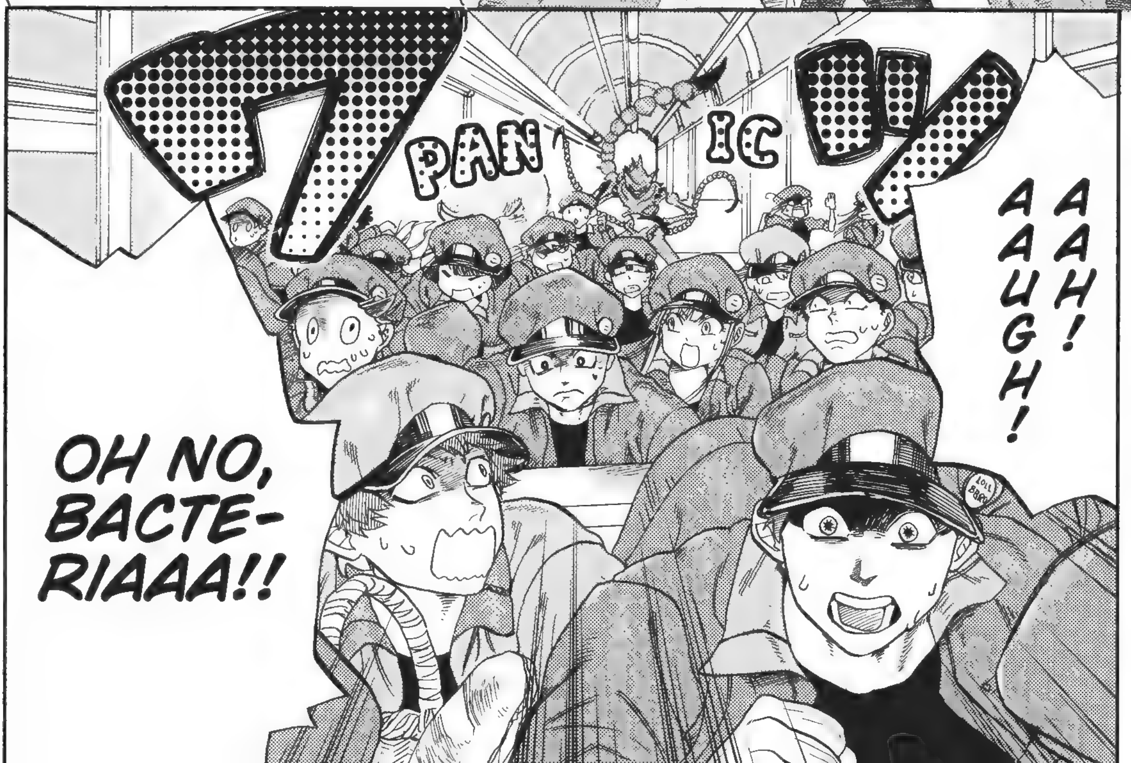

VASOCONSTRICTION UNDERWAY
RESTRICTED TRAFFIC
ウウウ
BLAARE
BLAARE
WHAT'S THIS? VASOCONSTRICTION UNDERWAY?
SOMETHING MUST HAVE HAPPENED OVER THAT WAY.
ざわ
CLAMOR
BLAAARE
BLARE
CLAMOR
ざわ
WHOA!
THUMP
ダダッ
?!
IT'S AN EMERGENCY!! A BIG SCRAPE WOUND OPENED OVER THERE!
AND BACTERIA ARE SWARMING IN FROM THE OPENING!!!
WHAT?!
YOU HAVE TO RU—
SMASH
?!!
CELL

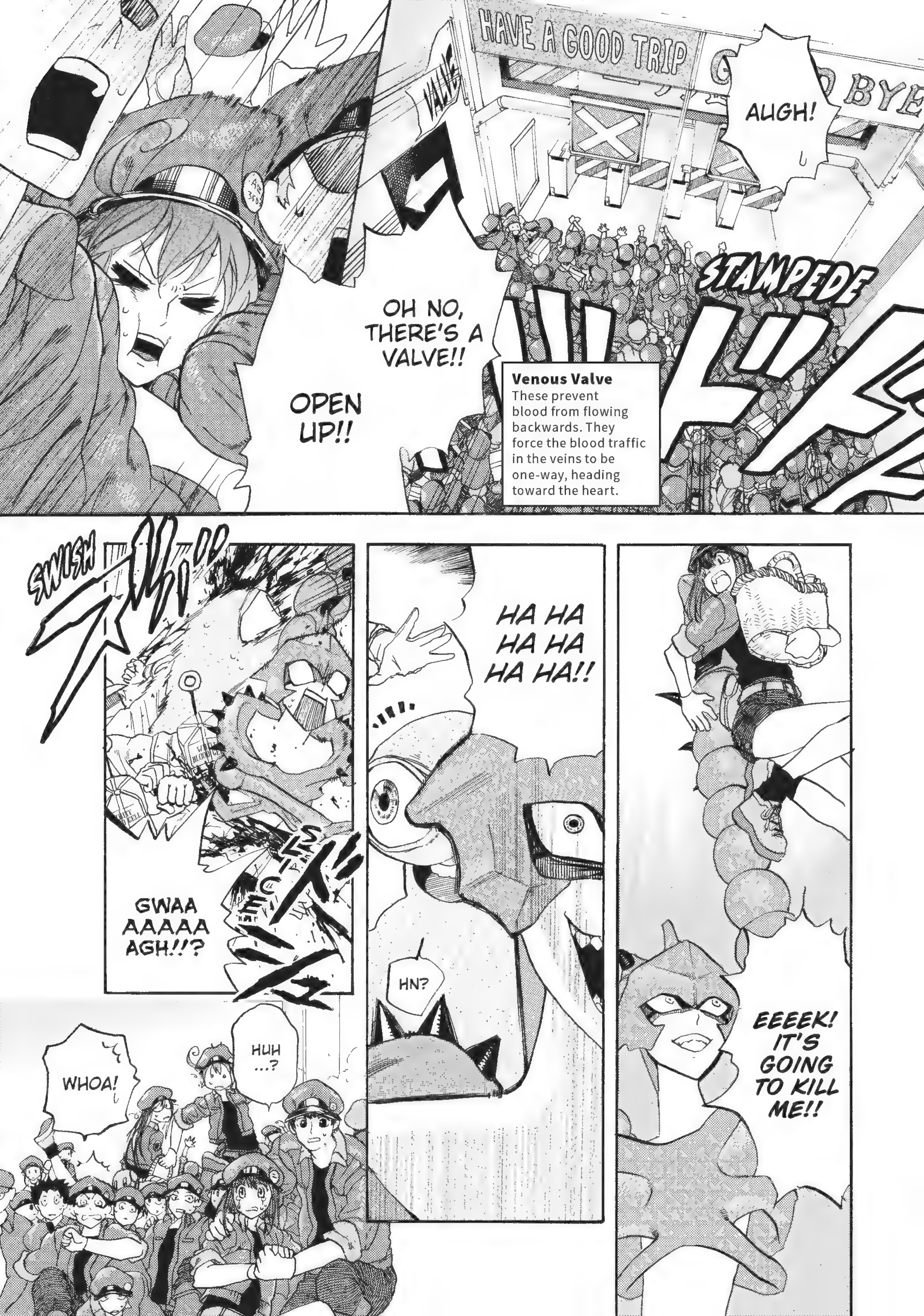
Vasoconstriction
Damaged blood vessels attempt to slow bleeding by constricting.


Pseudomonas Aeruginosa
A representative common bacteria that lives in the natural environment. Causes pseudomonas infections.

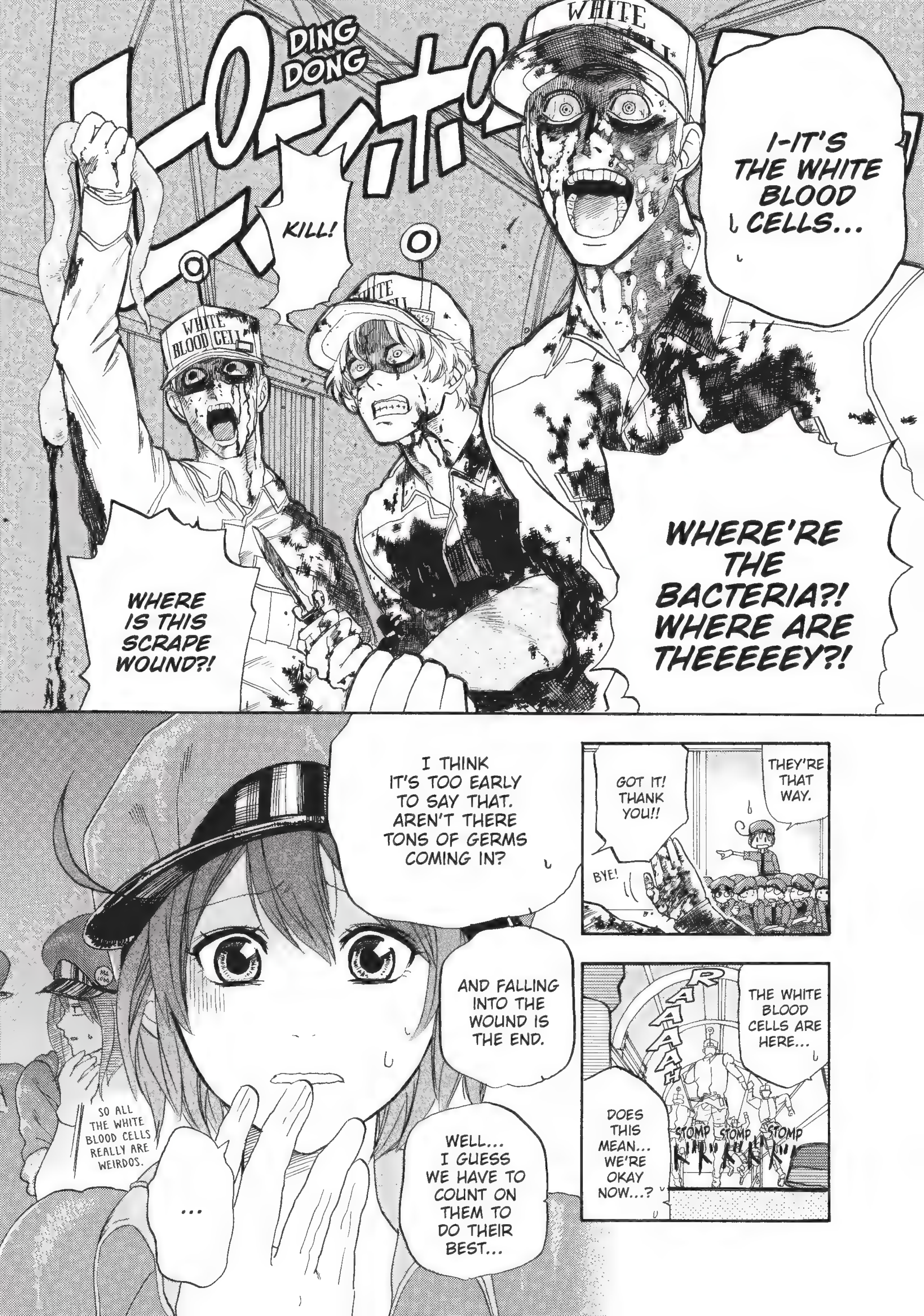
Streptococcus Pyogenes
Lives in the pharynx, the digestive organs, and the skin, among other places. It is a commonplace bacterium but can cause many diseases.

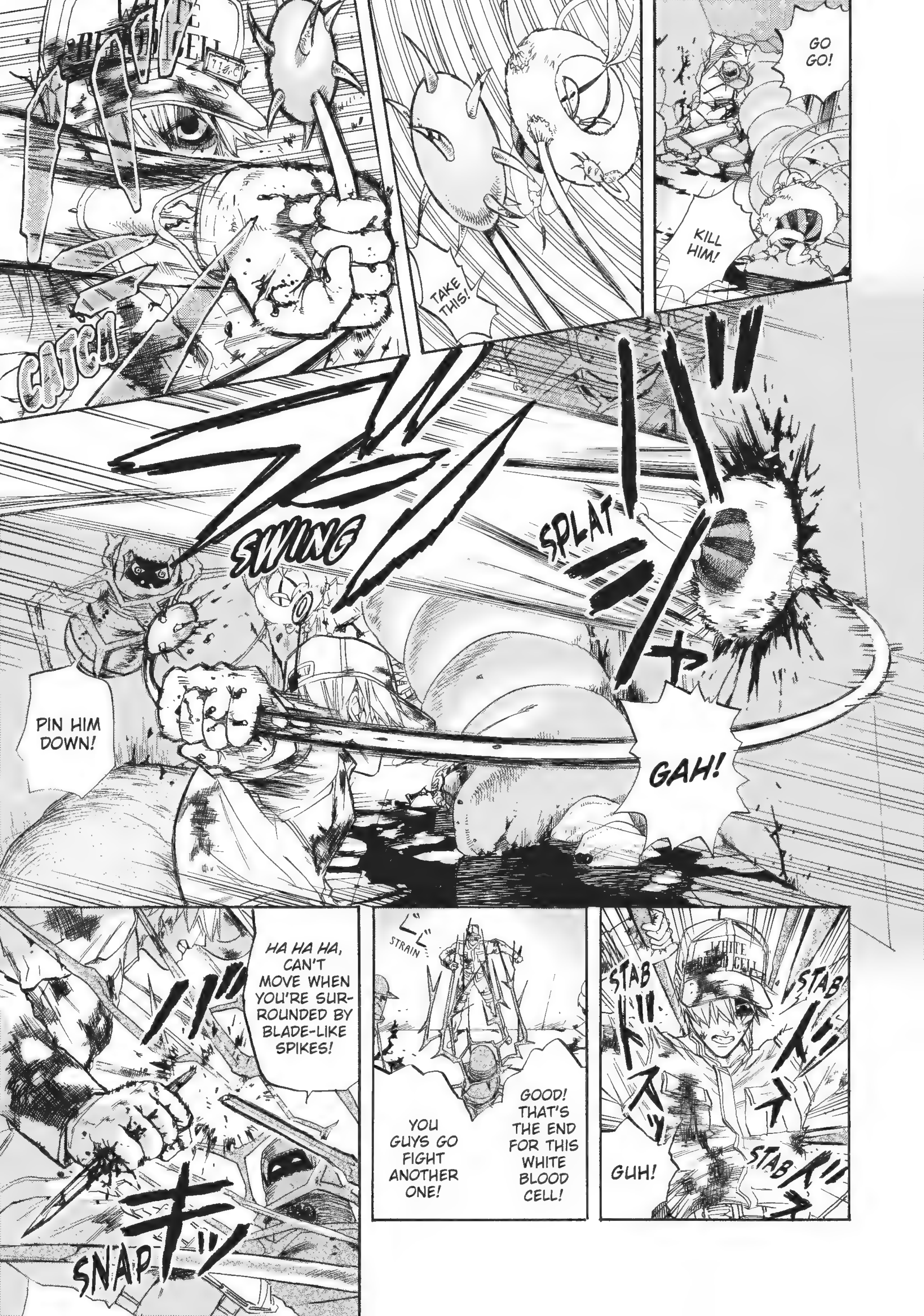
GWA HA HA HA HA HA!! THIS BODY BELONGS TO US NOW!!
RED BLOOD CELLS CARRYING NUTRIENTS, LINE UP RIGHT THERE! WE'LL KILL THE ONES WHO AREN'T CARRYING ANYTHING!!
CELL

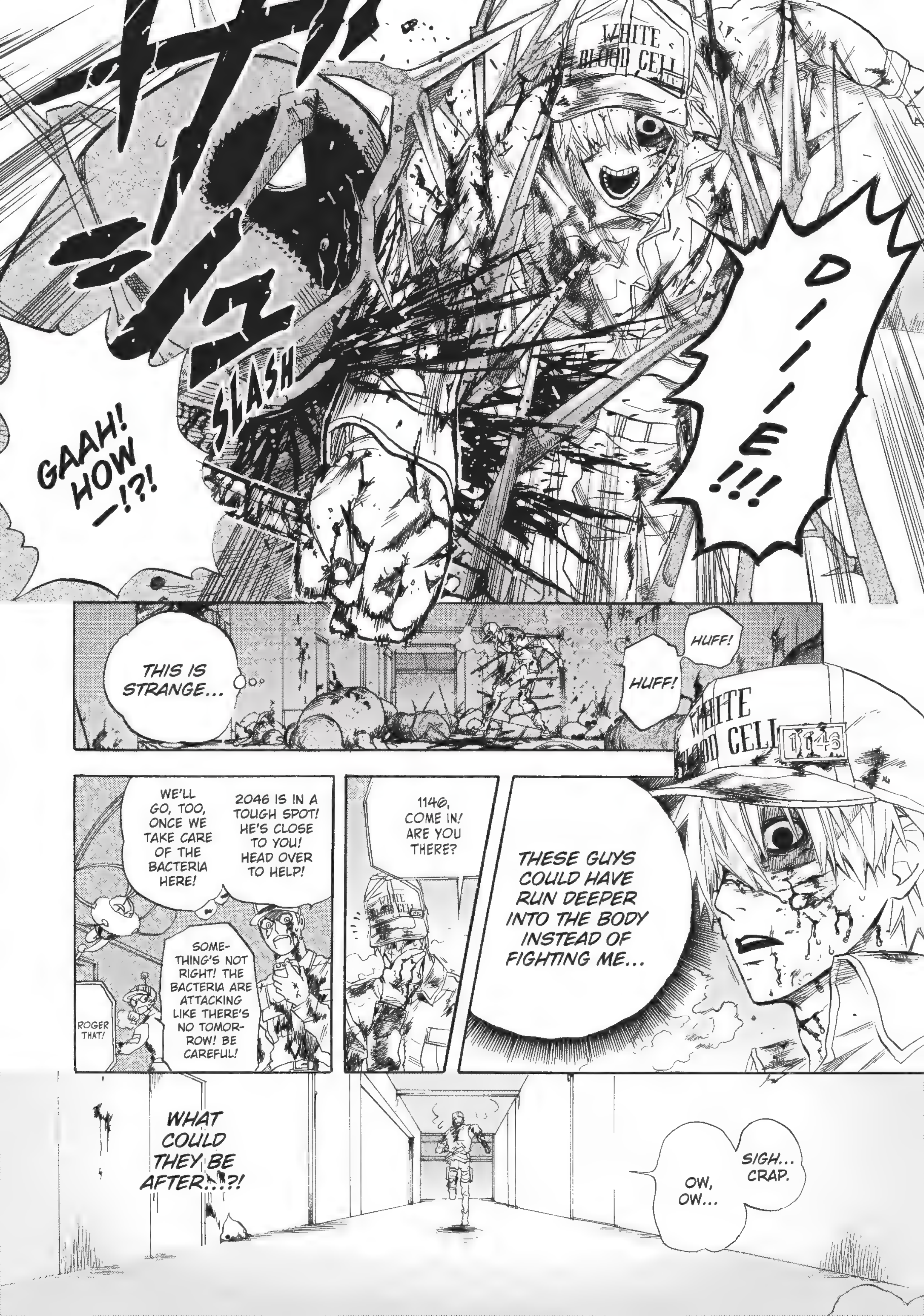

PANIC
AAAH!
AAAUGH!
OH NO, BACTERIAAA!!

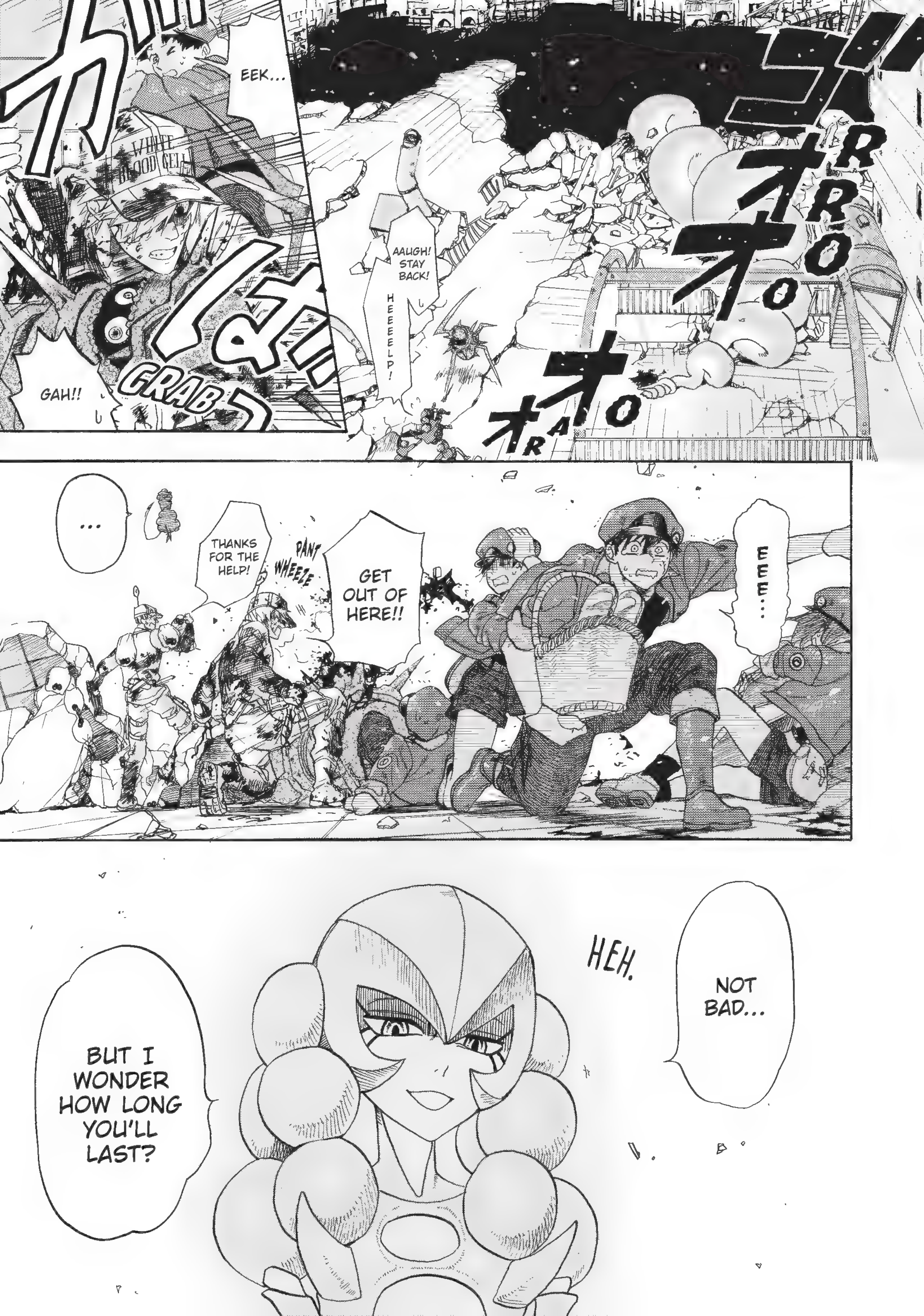

HAVE A GOOD TRIP
GOOD BYE
VALVE
AUGH!
STAMPEDE
OH NO, THERE'S A VALVE!!
OPEN UP!!
EEEEK! IT'S GOING TO KILL ME!!
HA HA HA HA HA HA!!
HN?
SWISH
SLICE
GWAA AAAAA AGH!!?
HUH ...?
WHOA!

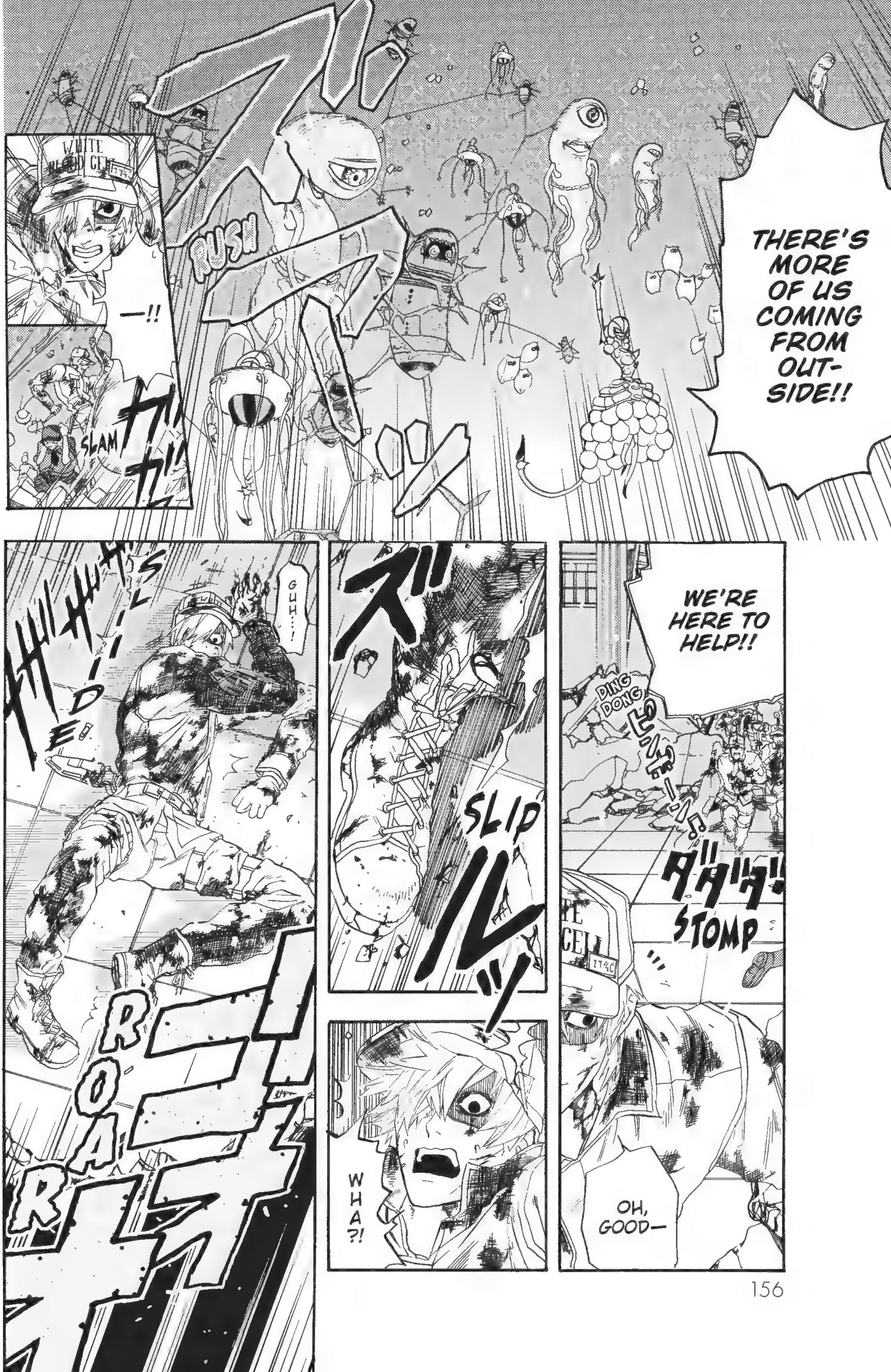
Venous Valve
These prevent blood from flowing backwards. They force the blood traffic in the veins to be one-way, heading toward the heart.

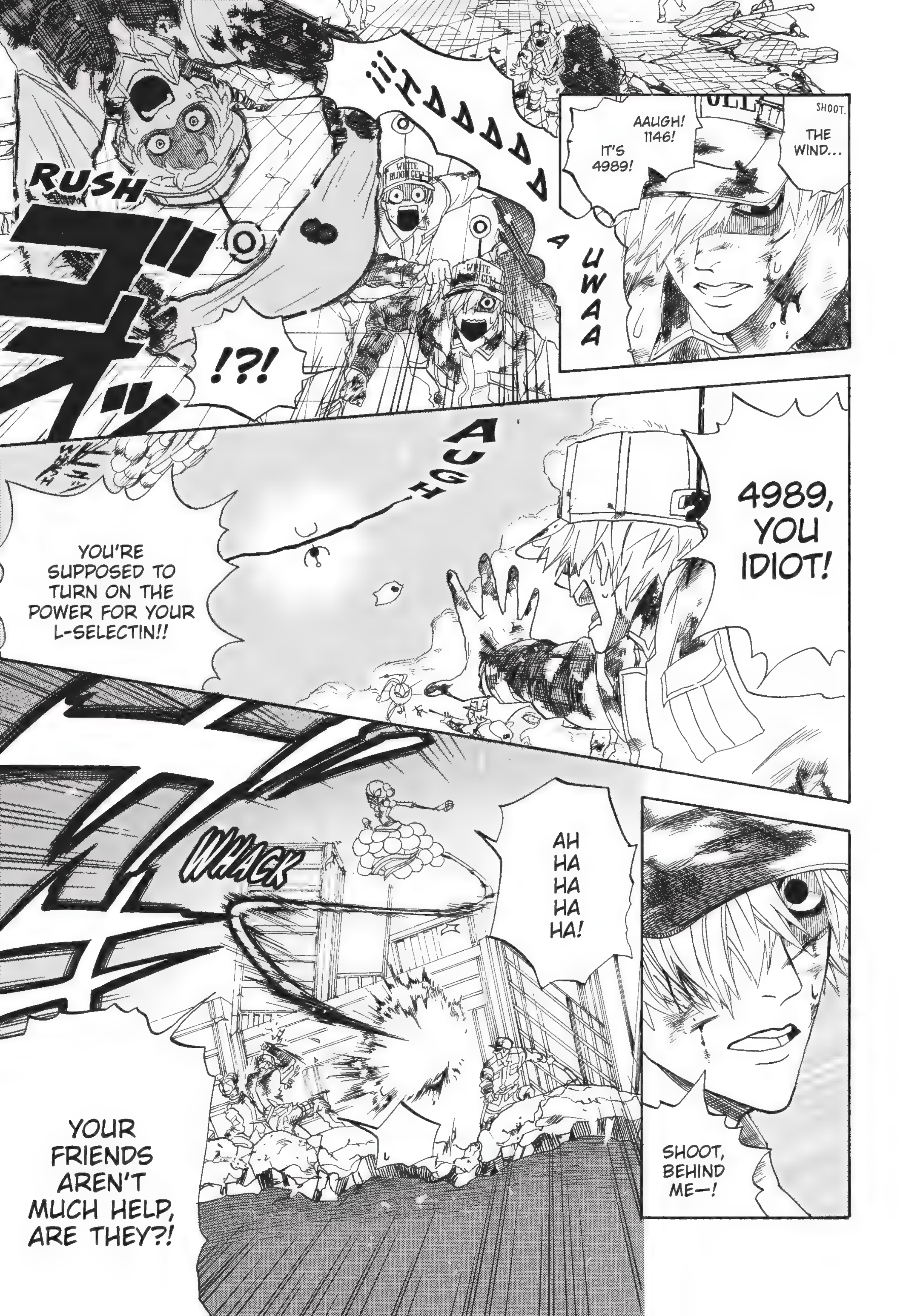

DING DONG
I-IT'S THE WHITE BLOOD CELLS...
WHERE'RE THE BACTERIA?! WHERE ARE THEEEEEY?!
KILL!
WHERE IS THIS SCRAPE WOUND?!
WHITE BLOOD CELL
THEY'RE THAT WAY.
GOT IT! THANK YOU!!
BYE!
THE WHITE BLOOD CELLS ARE HERE...
RAAAAH
STOMP STOMP STOMP
DOES THIS MEAN... WE'RE OKAY NOW...?
I THINK IT'S TOO EARLY TO SAY THAT. AREN'T THERE TONS OF GERMS COMING IN?
AND FALLING INTO THE WOUND IS THE END.
WELL... I GUESS WE HAVE TO COUNT ON THEM TO DO THEIR BEST...
...
SO ALL THE WHITE BLOOD CELLS REALLY ARE WEIRDOS.

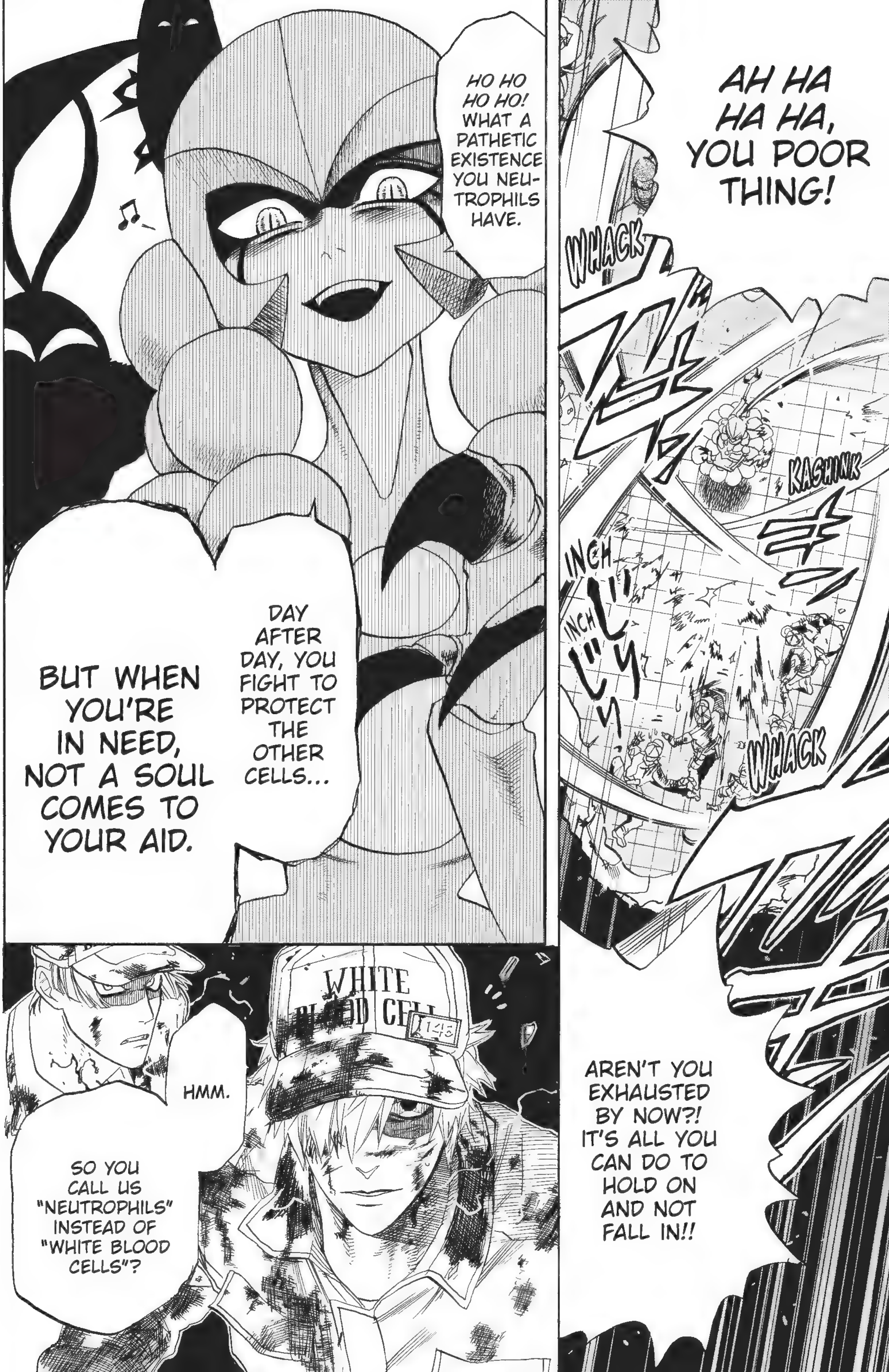

GO GO!
KILL HIM!
TAKE THIS!
CATCH
SWING
SPLAT
GAH!
PIN HIM DOWN!
WHITE BLOOD CELL
STAB
STAB
STAB
GUH!
GOOD! THAT'S THE END FOR THIS WHITE BLOOD CELL!
YOU GUYS GO FIGHT ANOTHER ONE!
STRAIN
HA HA HA, CAN'T MOVE WHEN YOU'RE SURROUNDED BY BLADE-LIKE SPIKES!
SNAP

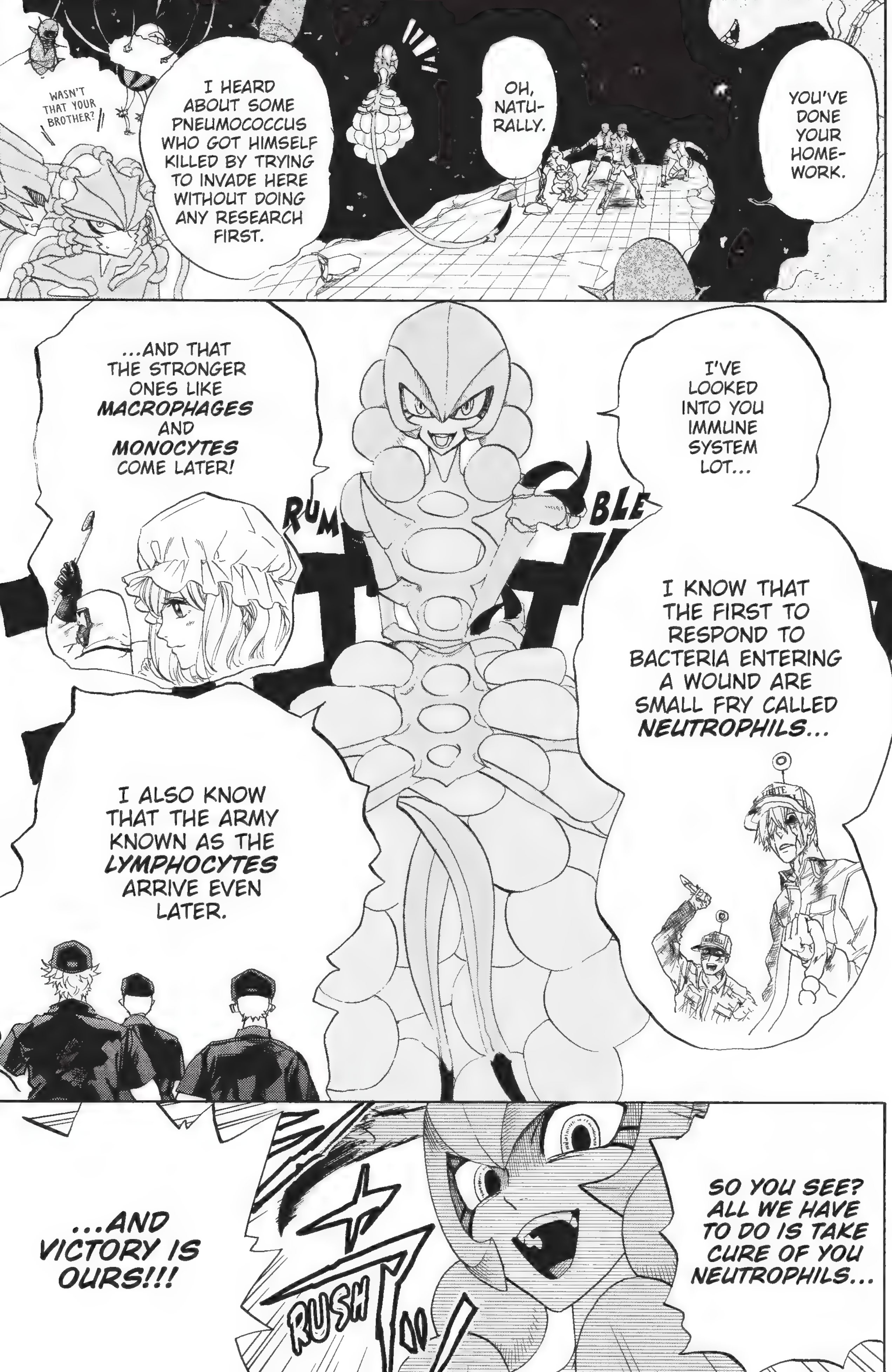

WHITE BLOOD CELL
D-I-I-I-E!!!
SLASH
GAAH! HOW—!?!
HUFF!
HUFF!
WHITE BLOOD CELL 1146
THIS IS STRANGE...
THESE GUYS COULD HAVE RUN DEEPER INTO THE BODY INSTEAD OF FIGHTING ME...
1146, COME IN! ARE YOU THERE?
WHITE BLOOD CELL
2046 IS IN A TOUGH SPOT! HE'S CLOSE TO YOU! HEAD OVER TO HELP!
WE'LL GO, TOO, ONCE WE TAKE CARE OF THE BACTERIA HERE!
SOMETHING'S NOT RIGHT! THE BACTERIA ARE ATTACKING LIKE THERE'S NO TOMORROW! BE CAREFUL!
ROGER THAT!
SIGH... CRAP.
OW, OW...
WHAT COULD THEY BE AFTER...?!

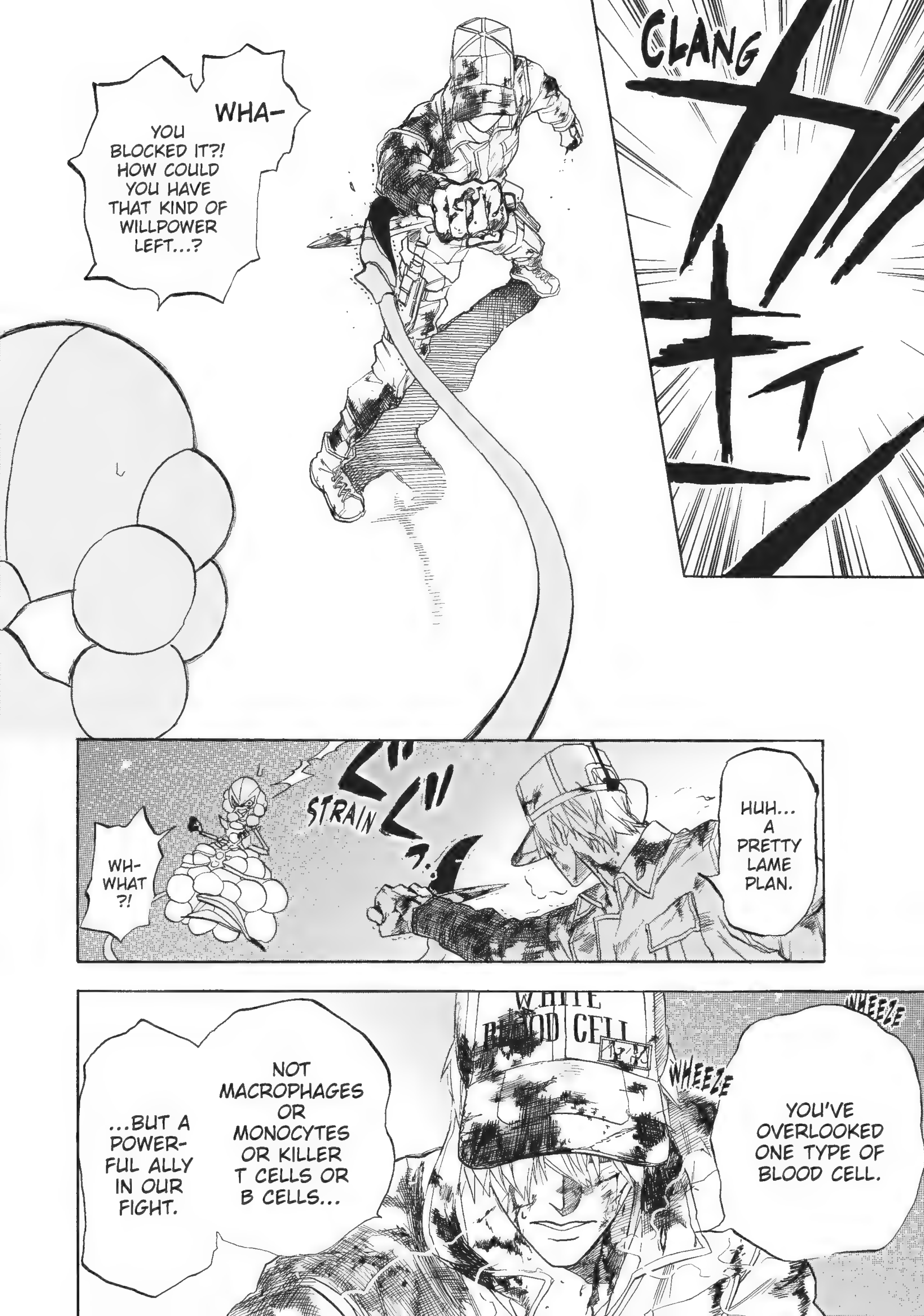

ゴオオオオ
ROAR
AAUGH! STAY BACK!
HEEEELP!
EEK...
WHITE BLOOD CELL
GRAB
GAH!!
EEE...
GET OUT OF HERE!!
PANT WHEEZE
THANKS FOR THE HELP!
...
NOT BAD...
HEH.
BUT I WONDER HOW LONG YOU'LL LAST?

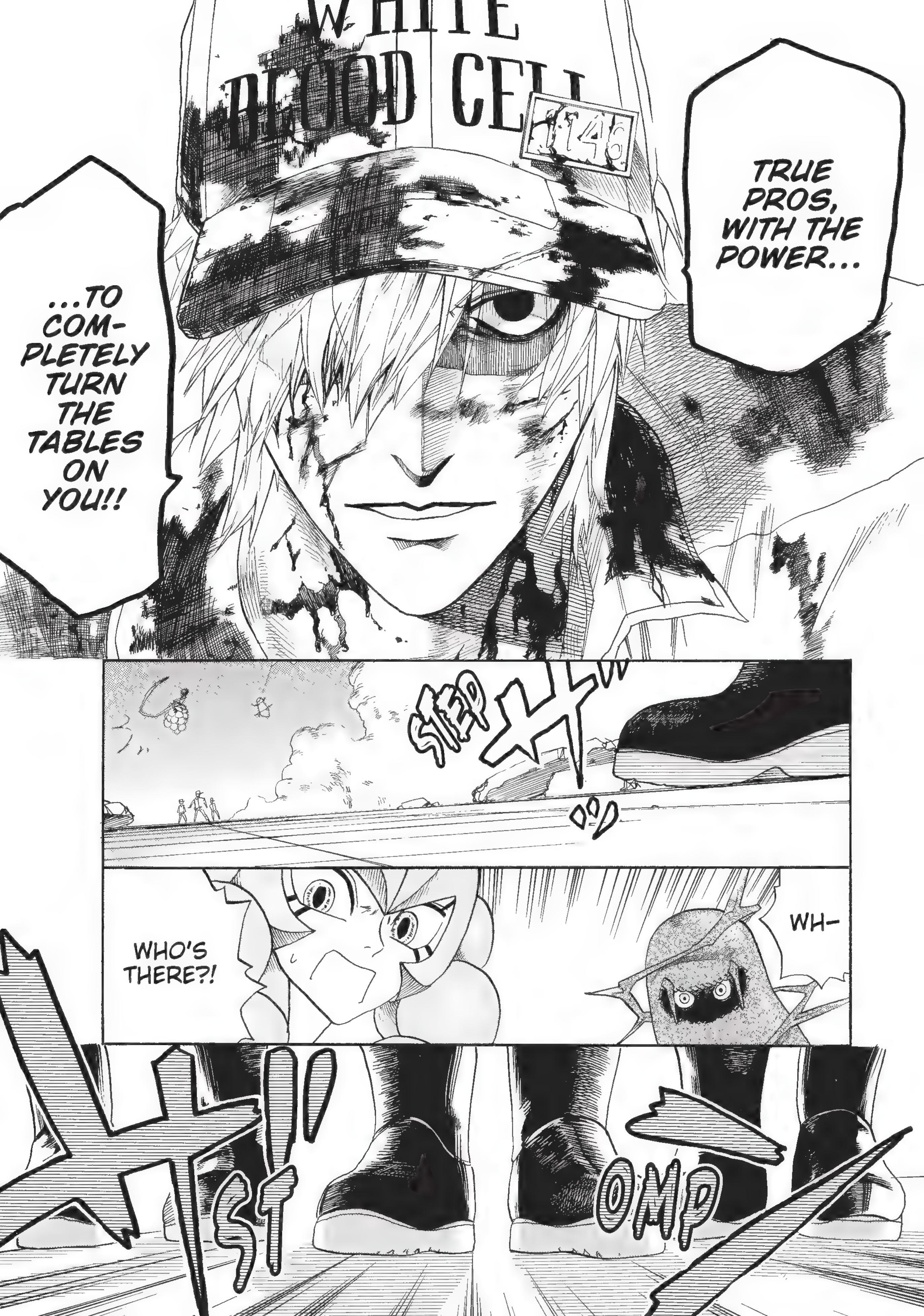

THERE'S MORE OF US COMING FROM OUTSIDE!!
RUSH
—!!
SLAM
WE'RE HERE TO HELP!!
DING DONG
STOMP
OH, GOOD—
SLIP
WHA?!
GUH...!
SLIDE!
ROAR

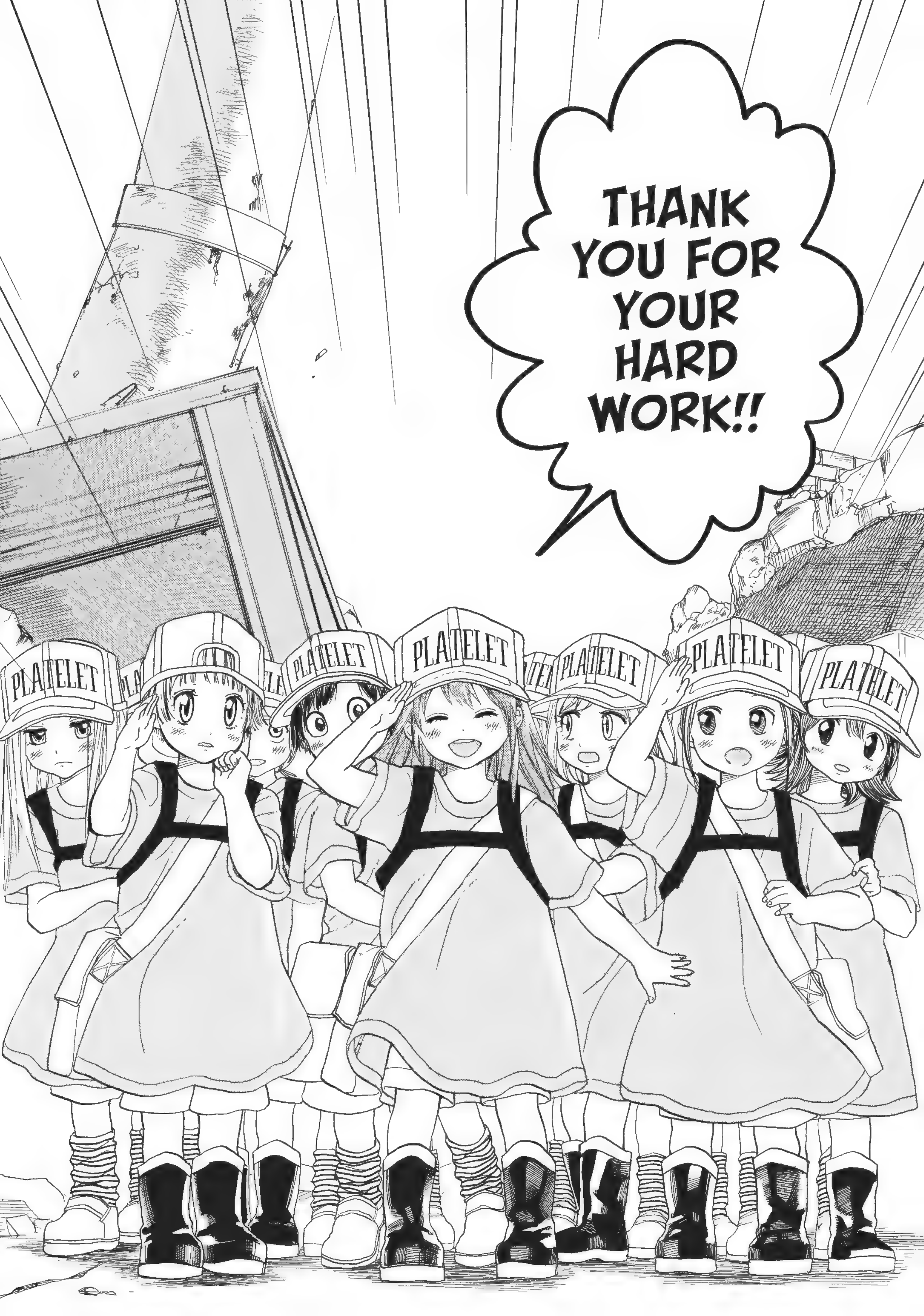

SHOOT.
THE WIND...
AAUGH! 1146! IT'S 4989!
UWAAA
AAAAAAAAH!!!
!?!
RUSH
ゴズッ
4989, YOU IDIOT!
AUGH
YOU'RE SUPPOSED TO TURN ON THE POWER FOR YOUR L-SELECTIN!!
SHOOT, BEHIND ME—!
AH HA HA HA HA HA!
WHACK
YOUR FRIENDS AREN'T MUCH HELP, ARE THEY?!

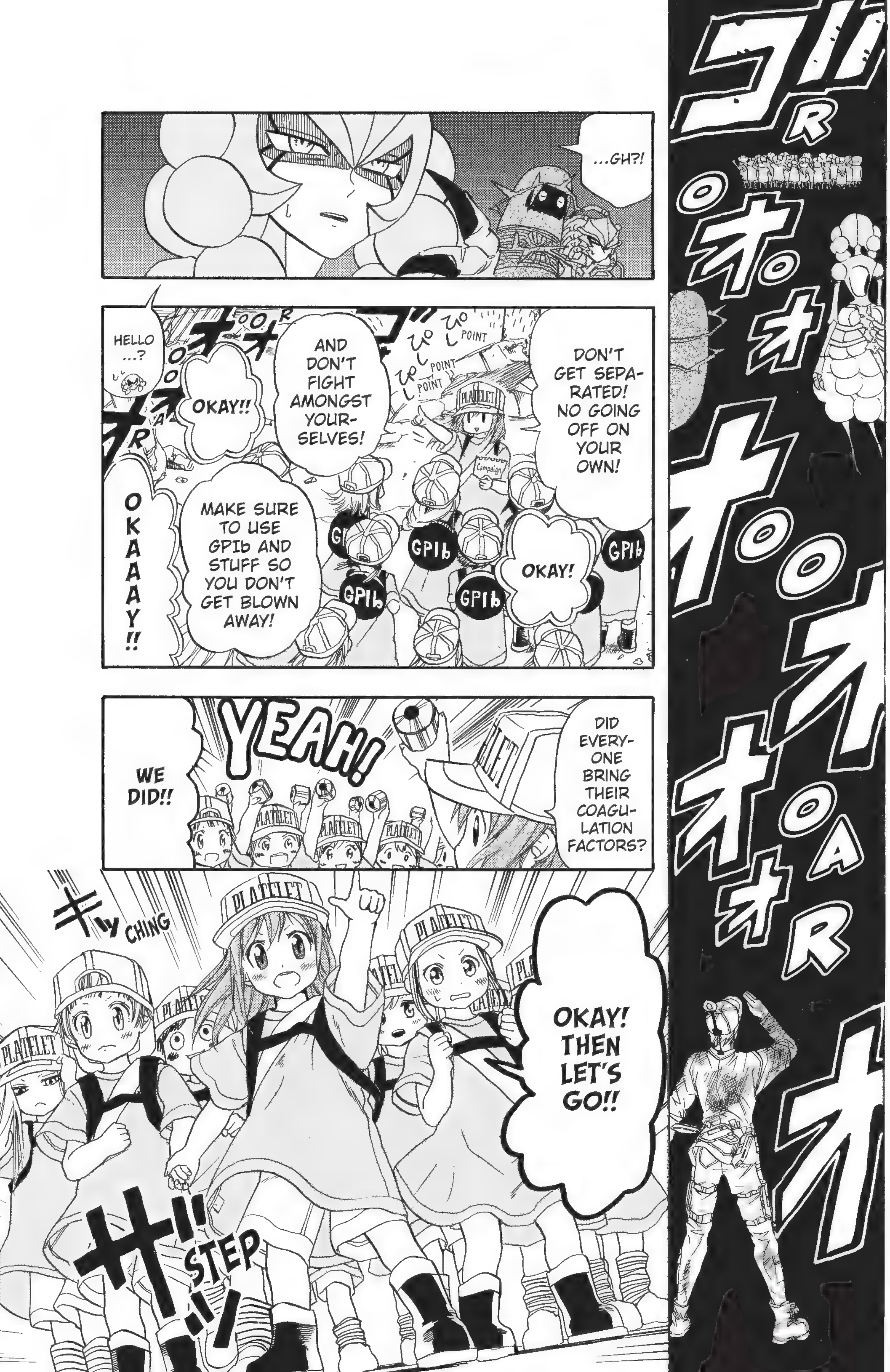

AH HA HA HA, YOU POOR THING!
WHACK
KASHINK
INCH
INCH
WHACK
AREN'T YOU EXHAUSTED BY NOW?! IT'S ALL YOU CAN DO TO HOLD ON AND NOT FALL IN!!
HO HO HO HO! WHAT A PATHETIC EXISTENCE YOU NEUTROPHILS HAVE.
DAY AFTER DAY, YOU FIGHT TO PROTECT THE OTHER CELLS...
BUT WHEN YOU'RE IN NEED, NOT A SOUL COMES TO YOUR AID.
WHITE BLOOD CELL
1146
HMM.
SO YOU CALL US "NEUTROPHILS" INSTEAD OF "WHITE BLOOD CELLS"?

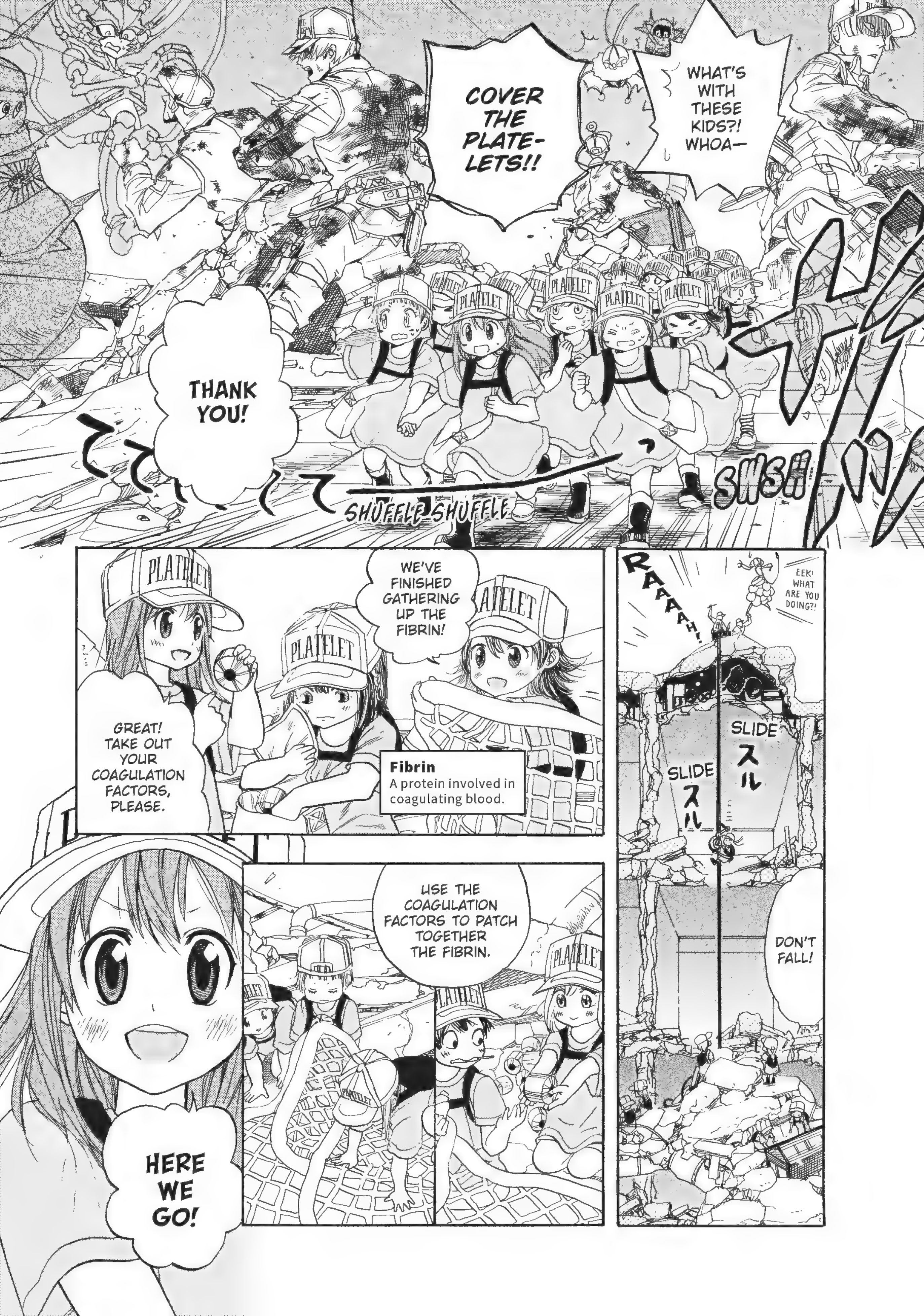

YOU'VE DONE YOUR HOMEWORK.
OH, NATURALLY.
I HEARD ABOUT SOME PNEUMOCOCCUS WHO GOT HIMSELF KILLED BY TRYING TO INVADE HERE WITHOUT DOING ANY RESEARCH FIRST.
WASN'T THAT YOUR BROTHER?
I'VE LOOKED INTO YOU IMMUNE SYSTEM LOT...
RUMBLE
I KNOW THAT THE FIRST TO RESPOND TO BACTERIA ENTERING A WOUND ARE SMALL FRY CALLED NEUTROPHILS...
...AND THAT THE STRONGER ONES LIKE MACROPHAGES AND MONOCYTES COME LATER!
I ALSO KNOW THAT THE ARMY KNOWN AS THE LYMPHOCYTES ARRIVE EVEN LATER.
SO YOU SEE? ALL WE HAVE TO DO IS TAKE CURE OF YOU NEUTROPHILS...
...AND VICTORY IS OURS!!!
RUSH


CLANG
WHA-
YOU BLOCKED IT?! HOW COULD YOU HAVE THAT KIND OF WILLPOWER LEFT...?
HUH... A PRETTY LAME PLAN.
STRAIN
WH-WHAT?!
WHITE BLOOD CELL
WHEEZE
WHEEZE
YOU'VE OVERLOOKED ONE TYPE OF BLOOD CELL.
NOT MACROPHAGES OR MONOCYTES OR KILLER T CELLS OR B CELLS...
...BUT A POWERFUL ALLY IN OUR FIGHT.

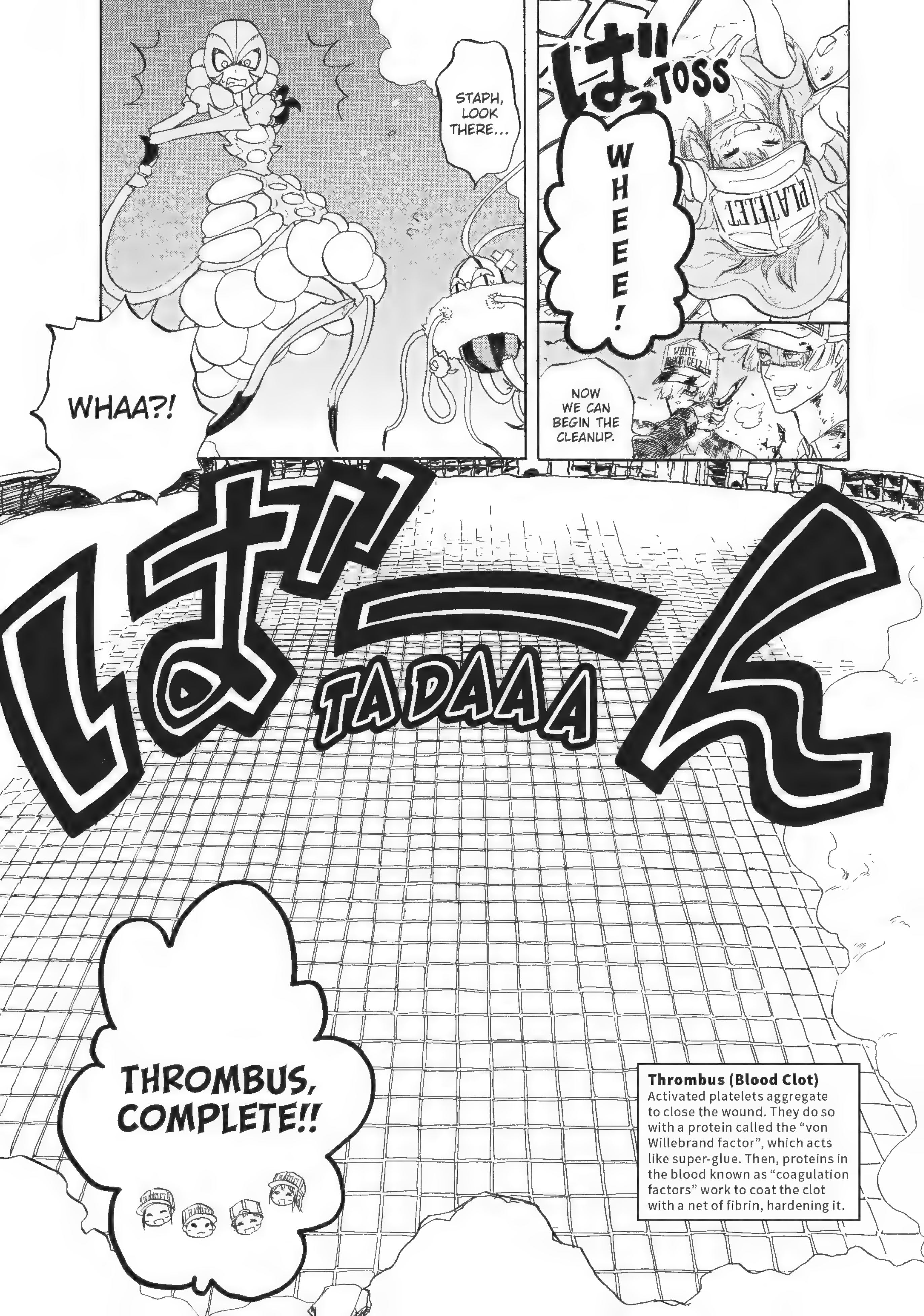

WHITE BLOOD CELL
1146
TRUE PROS, WITH THE POWER…
…TO COMPLETELY TURN THE TABLES ON YOU!!
STEP
WH-
WHO'S THERE?!
STOMP


THANK YOU FOR YOUR HARD WORK!!
PLATELET
PLATELET
PLATELET
PLATELET
PLATELET
PLATELET
PLATELET

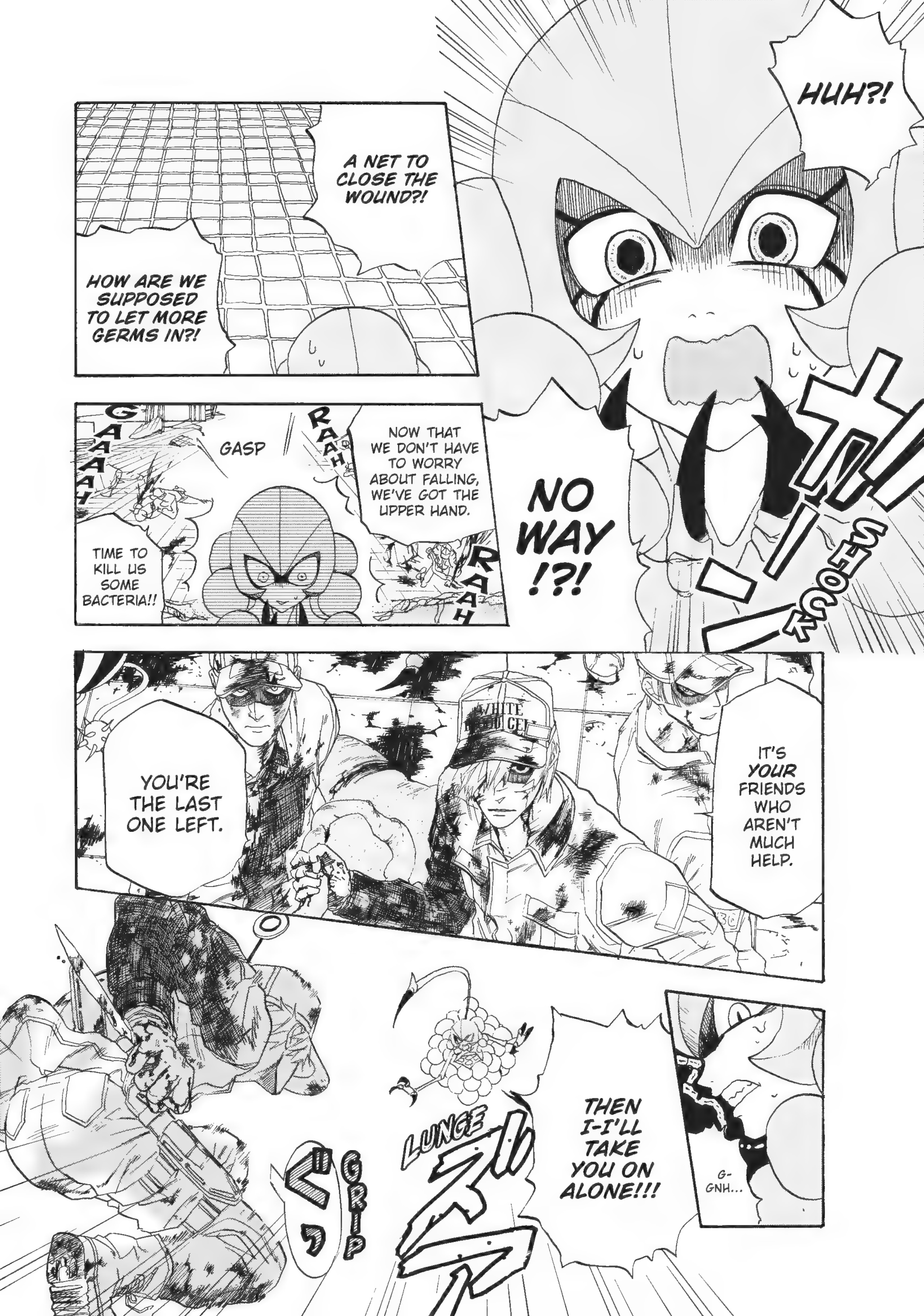

ゴォオオオオオオオ
ROAR
...GH?!
DON'T GET SEPARATED! NO GOING OFF ON YOUR OWN!
ぴ POINT
ぴ POINT
ぴ POINT
PLATELET
Campaign
AND DON'T FIGHT AMONGST YOURSELVES!
ゴォ ROAR
OKAY!!
HELLO ...?
MAKE SURE TO USE GPIb AND STUFF SO YOU DON'T GET BLOWN AWAY!
GPIb
OKAY!
OKAAAAY!!
DID EVERYONE BRING THEIR COAGULATION FACTORS?
YEAH!
WE DID!!
PLATELET
OKAY! THEN LET'S GO!!
キッ CHING
ザッ STEP
PLATELET

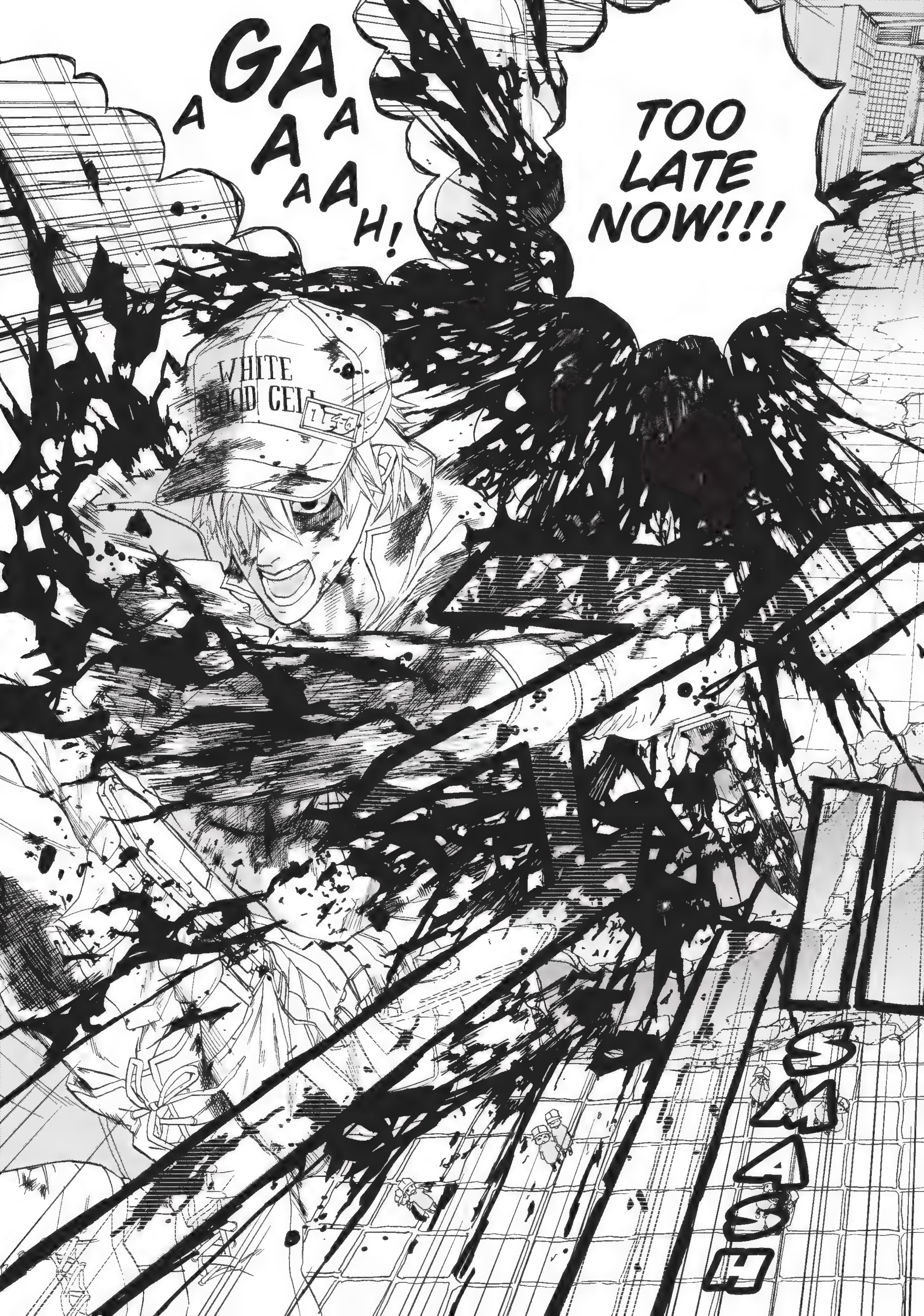

WHAT'S WITH THESE KIDS?! WHOA—
COVER THE PLATELETS!!
THANK YOU!
SWSH
SHUFFLE SHUFFLE
RAAAAH!
EEK! WHAT ARE YOU DOING?!
SLIDE スル
SLIDE スル
DON'T FALL!
WE'VE FINISHED GATHERING UP THE FIBRIN!
GREAT! TAKE OUT YOUR COAGULATION FACTORS, PLEASE.
USE THE COAGULATION FACTORS TO PATCH TOGETHER THE FIBRIN.
HERE WE GO!

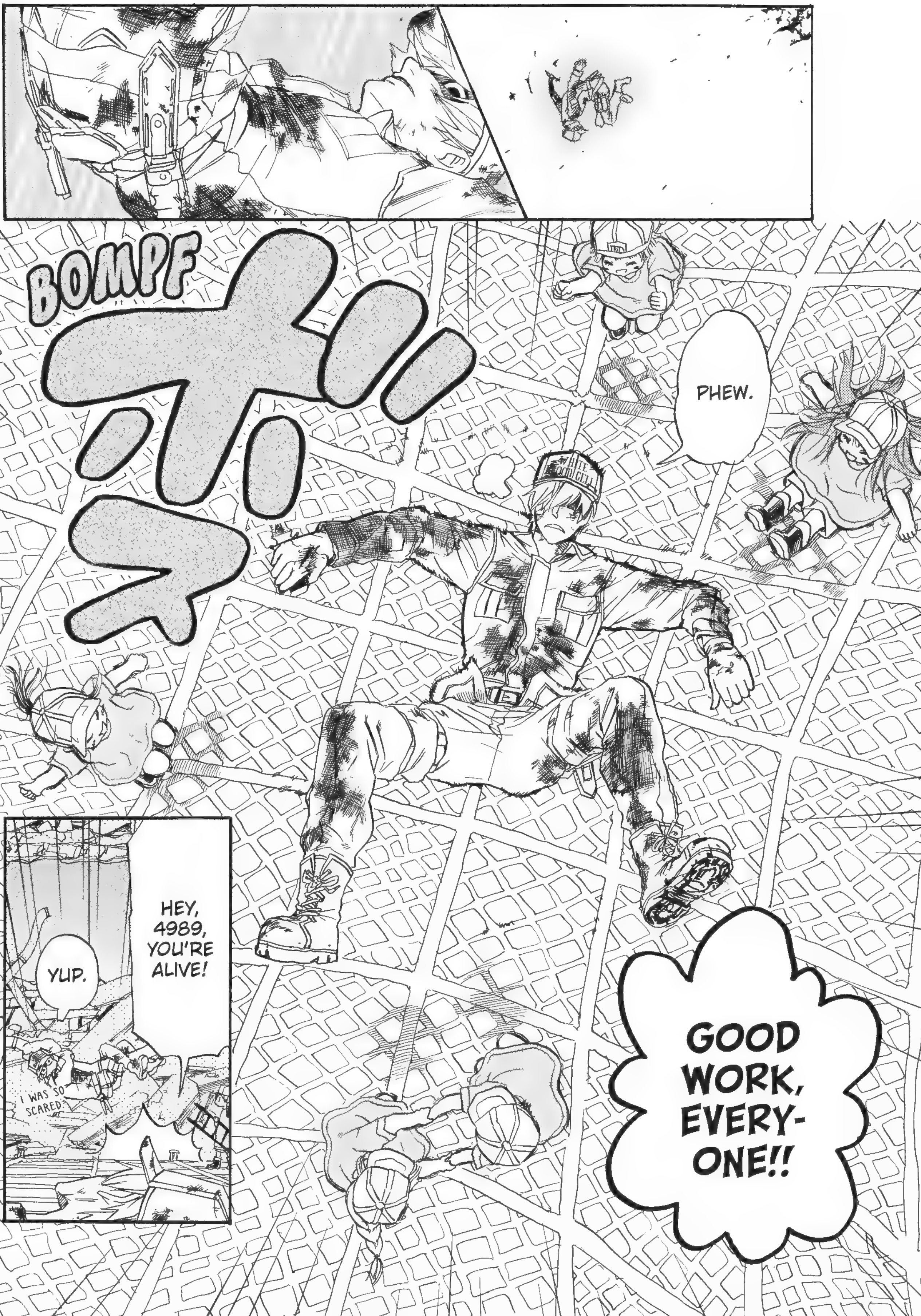
Fibrin
A protein involved in coagulating blood.

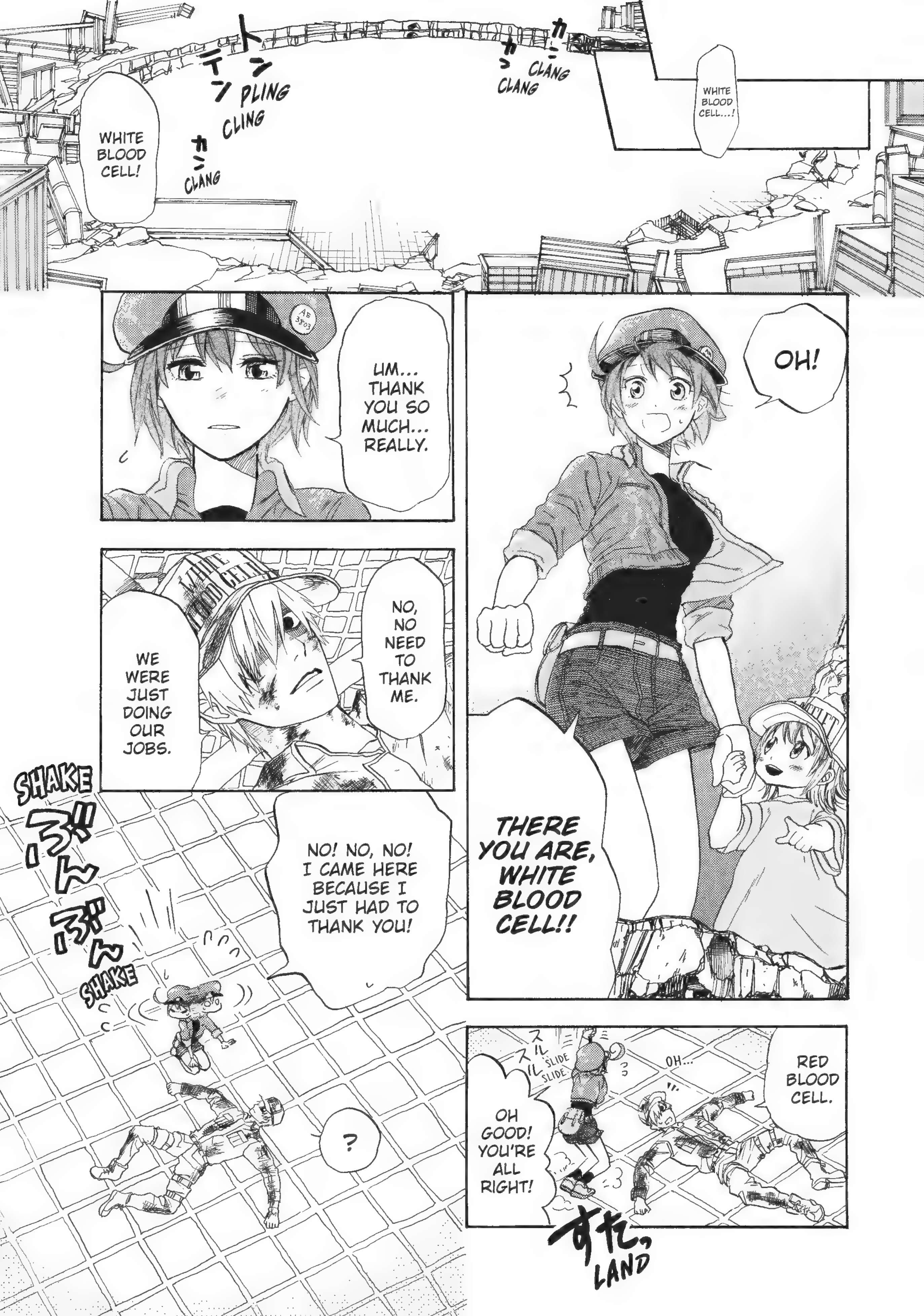

ばっ TOSS
WHEEE!
PLATELET
WHITE BLOOD CELL
NOW WE CAN BEGIN THE CLEANUP.
STAPH, LOOK THERE…
WHAA?!
ばーん TADAAA
THROMBUS, COMPLETE!!

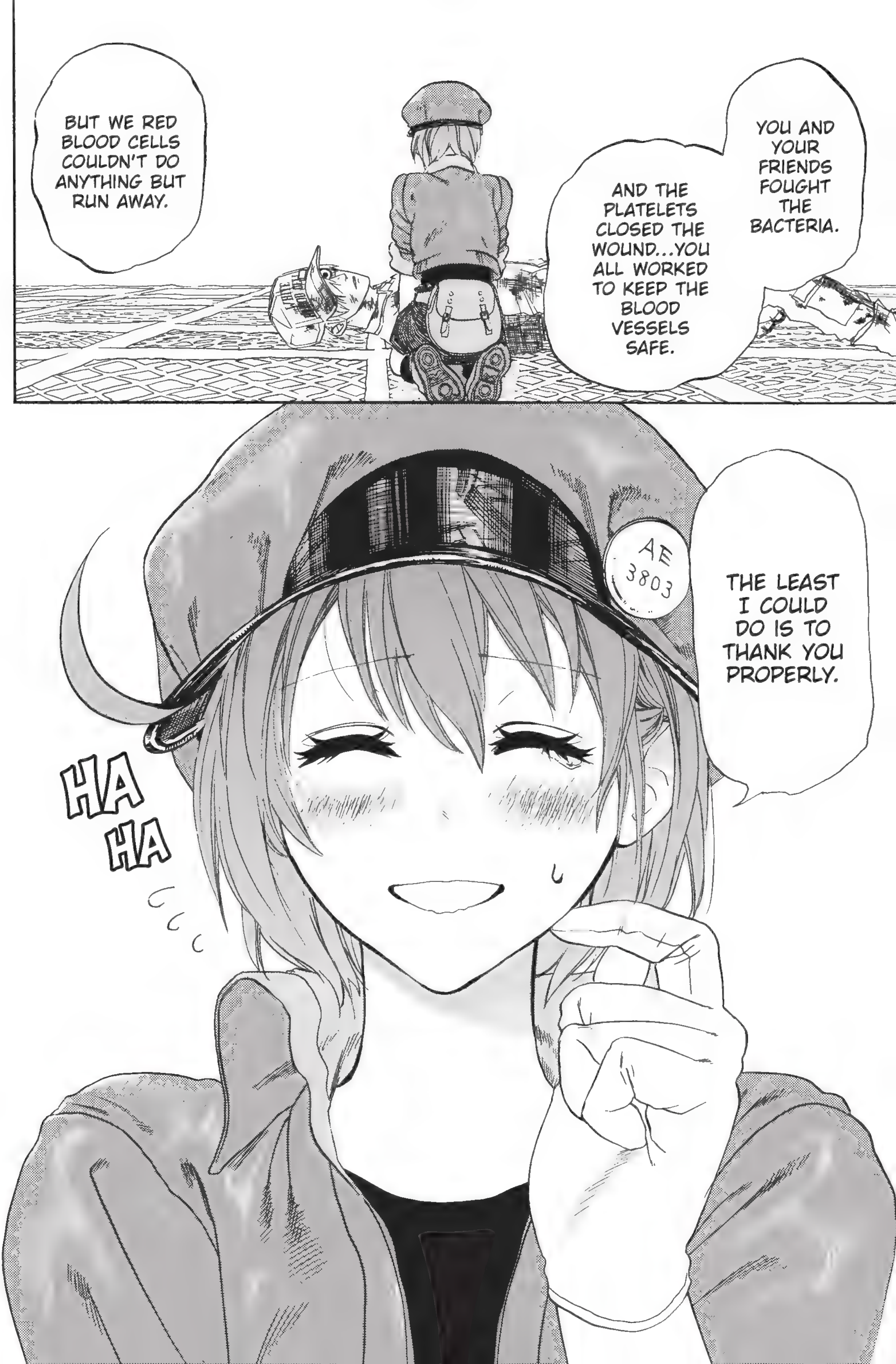
Thrombus (Blood Clot)
Activated platelets aggregate to close the wound. They do so with a protein called the "von Willebrand factor", which acts like super-glue. Then, proteins in the blood known as "coagulation factors" work to coat the clot with a net of fibrin, hardening it.

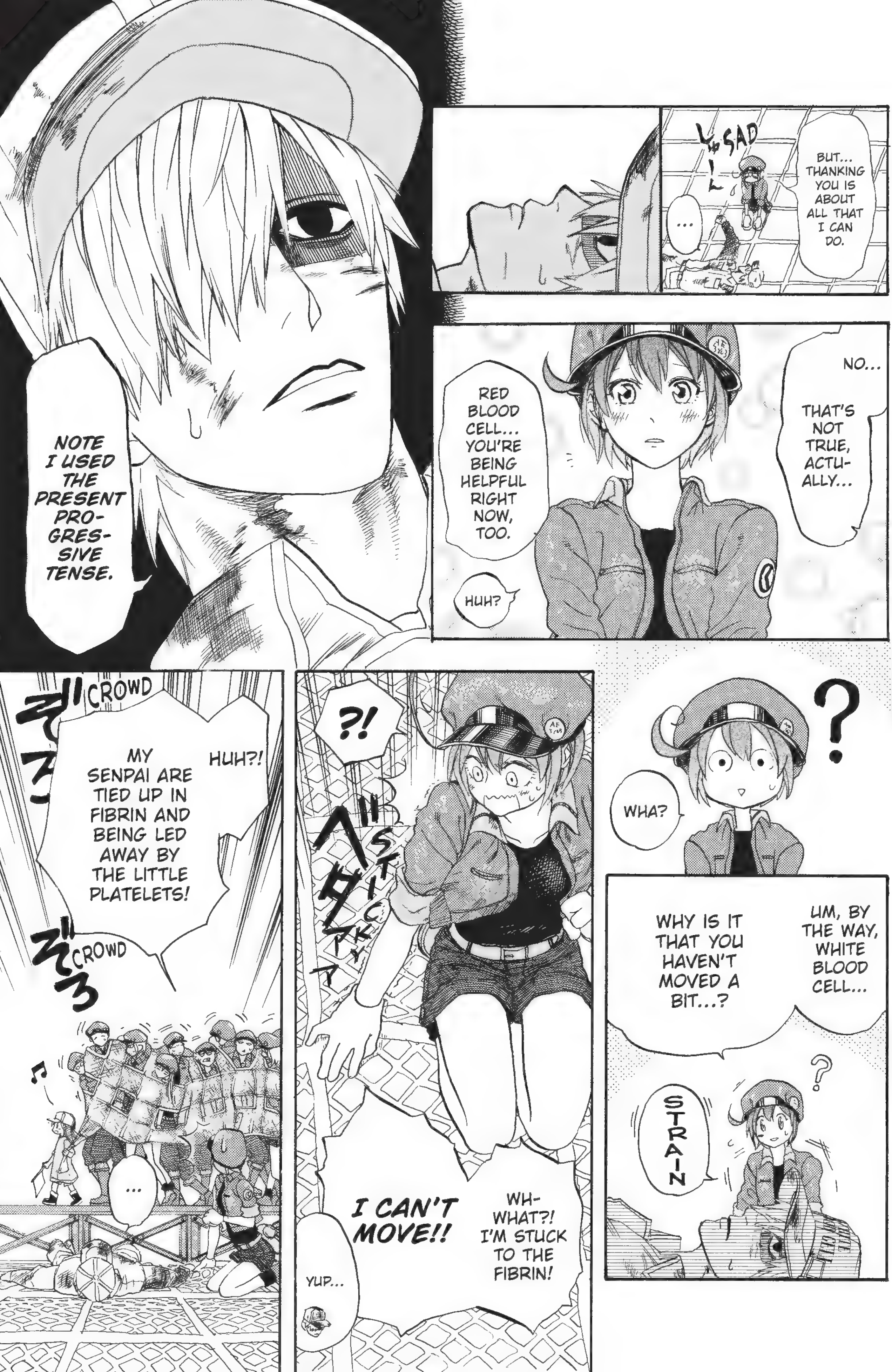

HUH?!
A NET TO CLOSE THE WOUND?!
HOW ARE WE SUPPOSED TO LET MORE GERMS IN?!
NO WAY!?!
SHOCK
NOW THAT WE DON'T HAVE TO WORRY ABOUT FALLING, WE'VE GOT THE UPPER HAND.
RAAH
RAAH
GASP
GAAAAH
TIME TO KILL US SOME BACTERIA!!
IT'S *YOUR* FRIENDS WHO AREN'T MUCH HELP.
WHITE BLOOD CELL
YOU'RE THE LAST ONE LEFT.
G-GNH...
THEN I-I'LL TAKE YOU ON ALONE!!!
LUNGE
GRIP

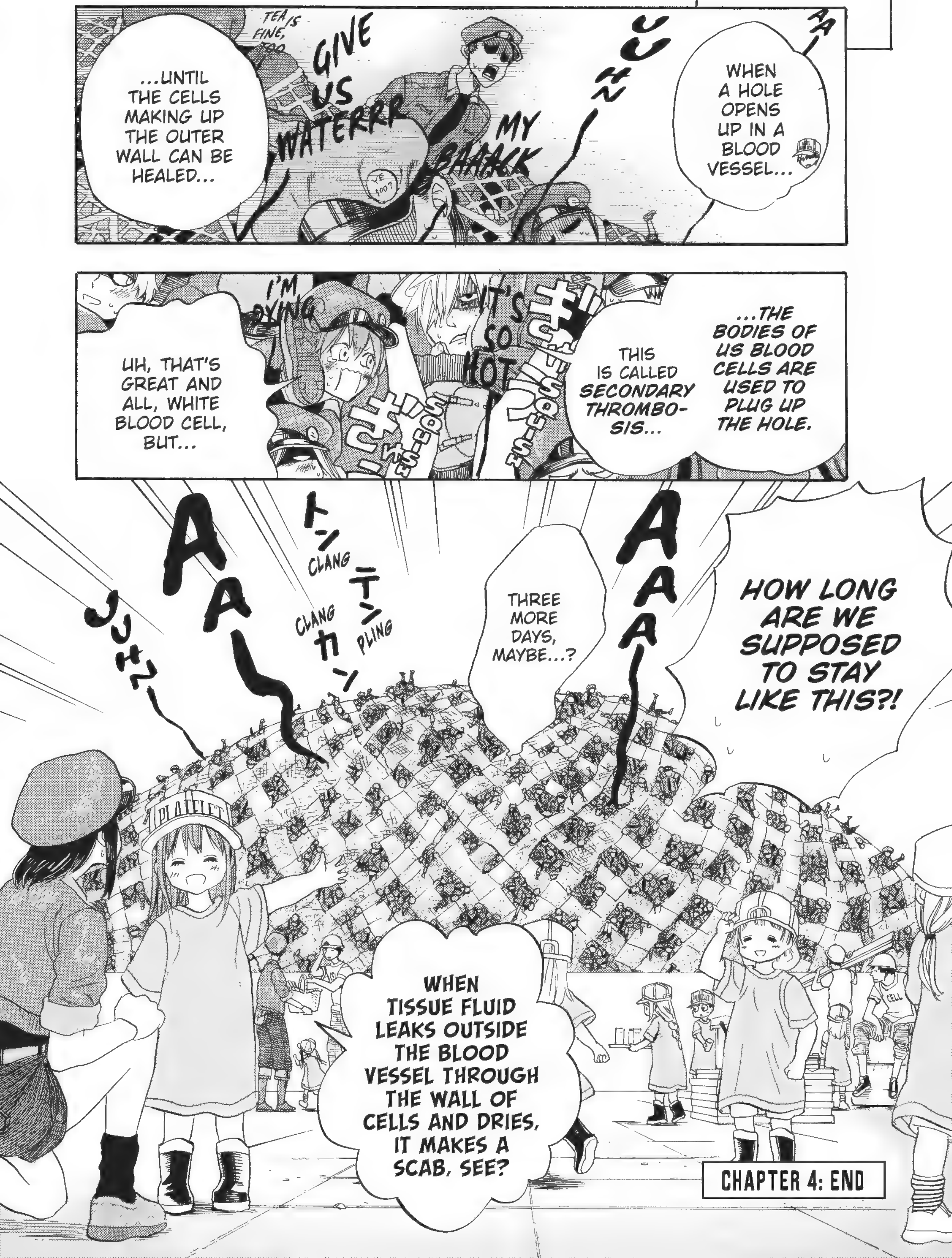

TOO LATE NOW!!!
AGAAAAAAH!
WHITE BLOOD CELL
1146
SMASH


ボス
BOMPF
PHEW.
HEY, 4989, YOU'RE ALIVE!
YUP.
I WAS SO SCARED.
GOOD WORK, EVERYONE!!


WHITE BLOOD CELL...!
カン CLANG
カン CLANG
トン PLING
テン CLING
カン CLANG
WHITE BLOOD CELL!
OH!
THERE YOU ARE, WHITE BLOOD CELL!!
UM... THANK YOU SO MUCH... REALLY.
NO, NO NEED TO THANK ME.
WE WERE JUST DOING OUR JOBS.
RED BLOOD CELL.
OH...
スル SLIDE
スル SLIDE
OH GOOD! YOU'RE ALL RIGHT!
すたっ LAND
NO! NO, NO! I CAME HERE BECAUSE I JUST HAD TO THANK YOU!
?
SHAKE ぶん
ぶん SHAKE


YOU AND YOUR FRIENDS FOUGHT THE BACTERIA.
AND THE PLATELETS CLOSED THE WOUND...YOU ALL WORKED TO KEEP THE BLOOD VESSELS SAFE.
BUT WE RED BLOOD CELLS COULDN'T DO ANYTHING BUT RUN AWAY.
AE 3803
THE LEAST I COULD DO IS TO THANK YOU PROPERLY.
HA HA


SAD
BUT... THANKING YOU IS ABOUT ALL THAT I CAN DO.
...
NO... THAT'S NOT TRUE, ACTUALLY...
RED BLOOD CELL... YOU'RE BEING HELPFUL RIGHT NOW, TOO.
HUH?
NOTE I USED THE PRESENT PROGRESSIVE TENSE.
?
WHA?
UM, BY THE WAY, WHITE BLOOD CELL...
WHY IS IT THAT YOU HAVEN'T MOVED A BIT...?
STRAIN
?
?!
STICKY
WH- WHAT?! I'M STUCK TO THE FIBRIN!
I CAN'T MOVE!!
YUP...
CROWD
HUH?!
MY SENPAI ARE TIED UP IN FIBRIN AND BEING LED AWAY BY THE LITTLE PLATELETS!
CROWD
♪
...


AAA-
WHEN A HOLE OPENS UP IN A BLOOD VESSEL...
UUHN
MY BAAACK
GIVE US WATERRR
TEA IS FINE, TOO
...UNTIL THE CELLS MAKING UP THE OUTER WALL CAN BE HEALED...
...THE BODIES OF US BLOOD CELLS ARE USED TO PLUG UP THE HOLE.
THIS IS CALLED SECONDARY THROMBOSIS...
ぎゅっ SQUISH
IT'S SO HOT
ぎゅっ SQUISH
I'M DYING
UH, THAT'S GREAT AND ALL, WHITE BLOOD CELL, BUT...
HOW LONG ARE WE SUPPOSED TO STAY LIKE THIS?!
AAAA-
THREE MORE DAYS, MAYBE...?
テン PLING
トン CLANG
カン CLANG
AAA~
UUHN-
WHEN TISSUE FLUID LEAKS OUTSIDE THE BLOOD VESSEL THROUGH THE WALL OF CELLS AND DRIES, IT MAKES A SCAB, SEE?

CHAPTER 4: END

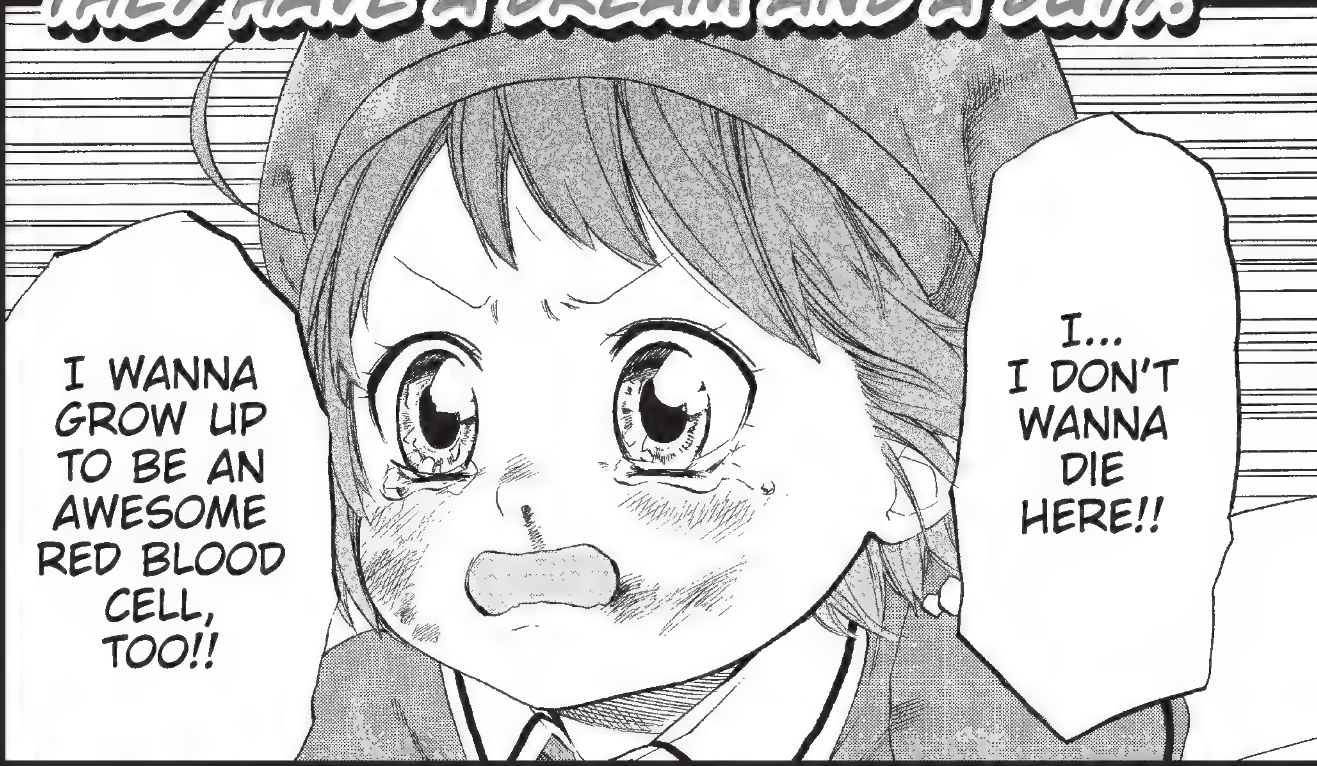
PLATELET
COME SEE US AGAIN SOON!

CELLS AT WORK! VOLUME 1: END

...AND HOW DO THEY REACH THEIR FULL POTENTIAL AS CELLS?
ANTIGEN SPOTTED!!!
WHO ARE THESE KIDS?!
ビシッ
SNIKK
NEXT VOLUME!

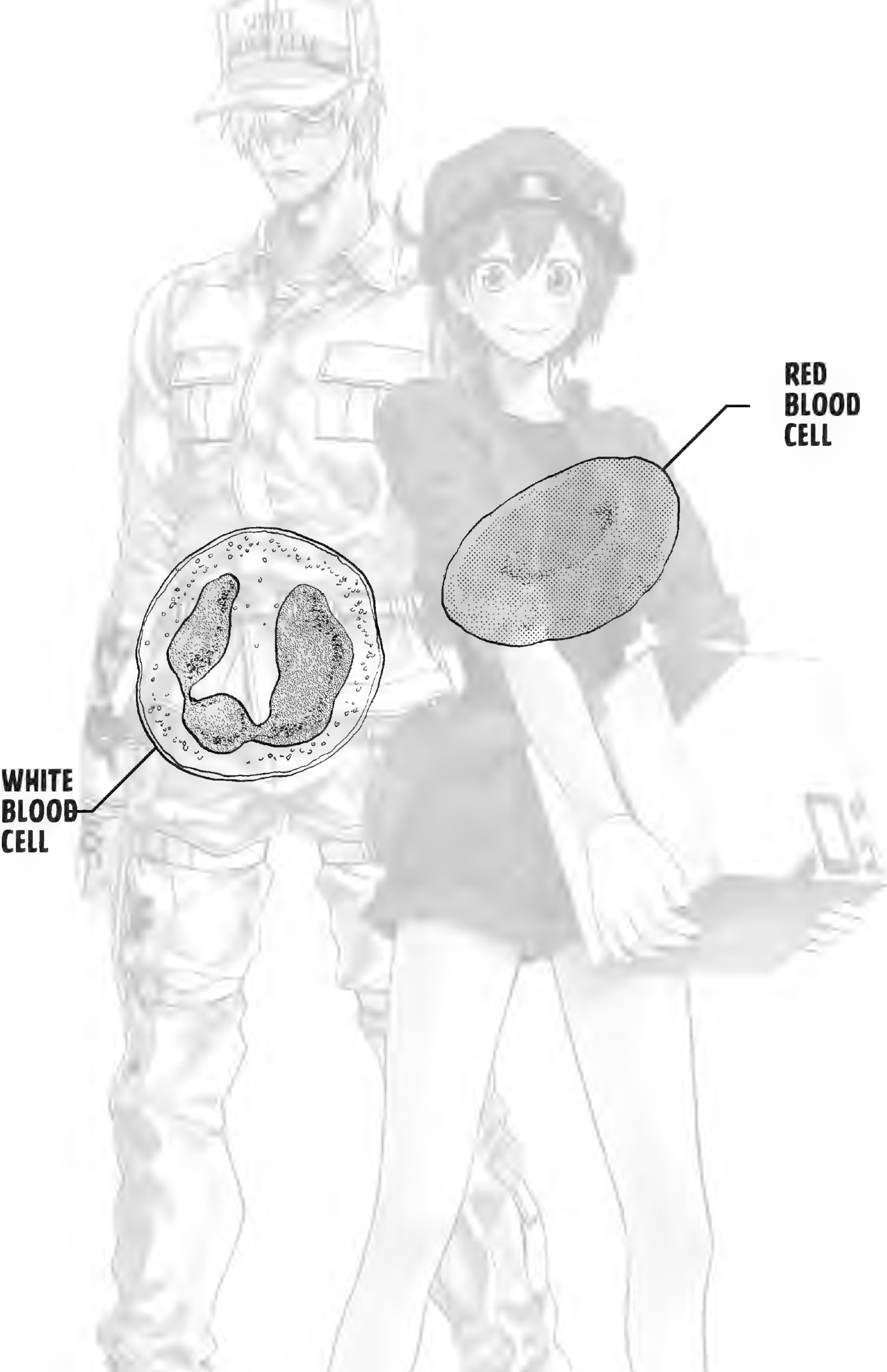
WHITE BLOOD CELLS, RED BLOOD CELLS—WHERE ARE THEY BORN...

THEY HAVE A DREAM AND A DUTY!

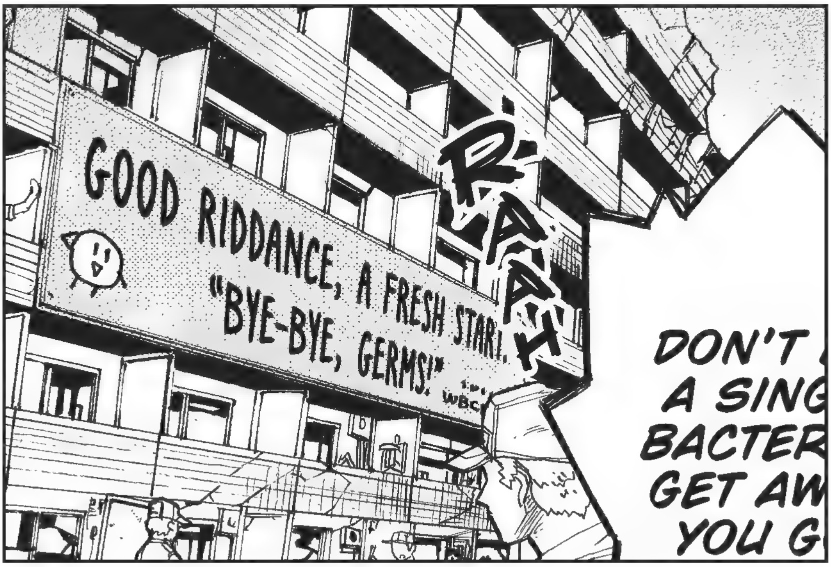

I...
I DON'T WANNA DIE HERE!!
I WANNA GROW UP TO BE AN AWESOME RED BLOOD CELL, TOO!!

THE YOUNG CELLS WILL COME OF AGE AND FACE THEIR MYSTERIOUS DESTINY!!

Cells at Work!
はたらく細胞


RED BLOOD CELL
WHITE BLOOD CELL

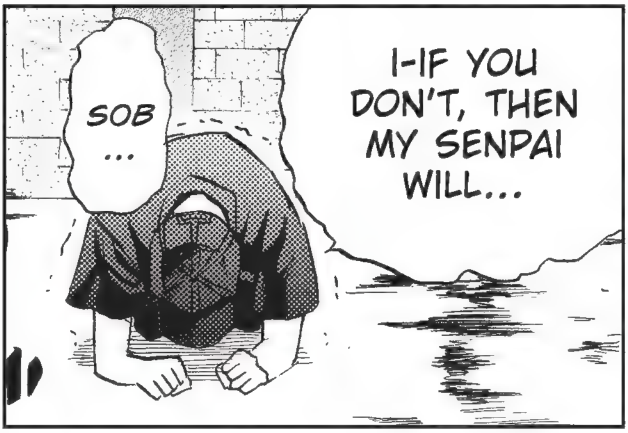
TRANSLATION NOTES


GOOD RIDDANCE, A FRESH START. "BYE-BYE, GERMS!"
WBC
RAAAH
DON'T
A SING
BACTER
GET AW
YOU G

Bye-bye, Germs

Page 11

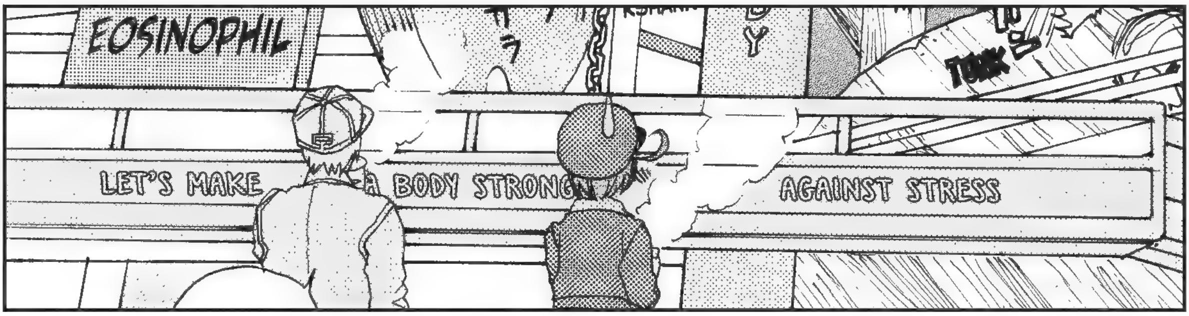
"Bye-bye, Germs," or "***Baibai-kin***" in the original Japanese, is the parting line of the main villain Baikin Man (Germ Man) from the popular, long-runnning children's cartoon ***Anpan Man***. It is a pun combining the English phrase "Bye-bye" and the Japanese word "***baikin***," meaning "germ." In the original Japanese, the sign is written in the 5-7-5 meter of a haiku poem, which is a common practice in educational messages for children as well as in public service slogans.


I-IF YOU DON'T, THEN MY SENPAI WILL...
SOB ...

Senpai

Page 115

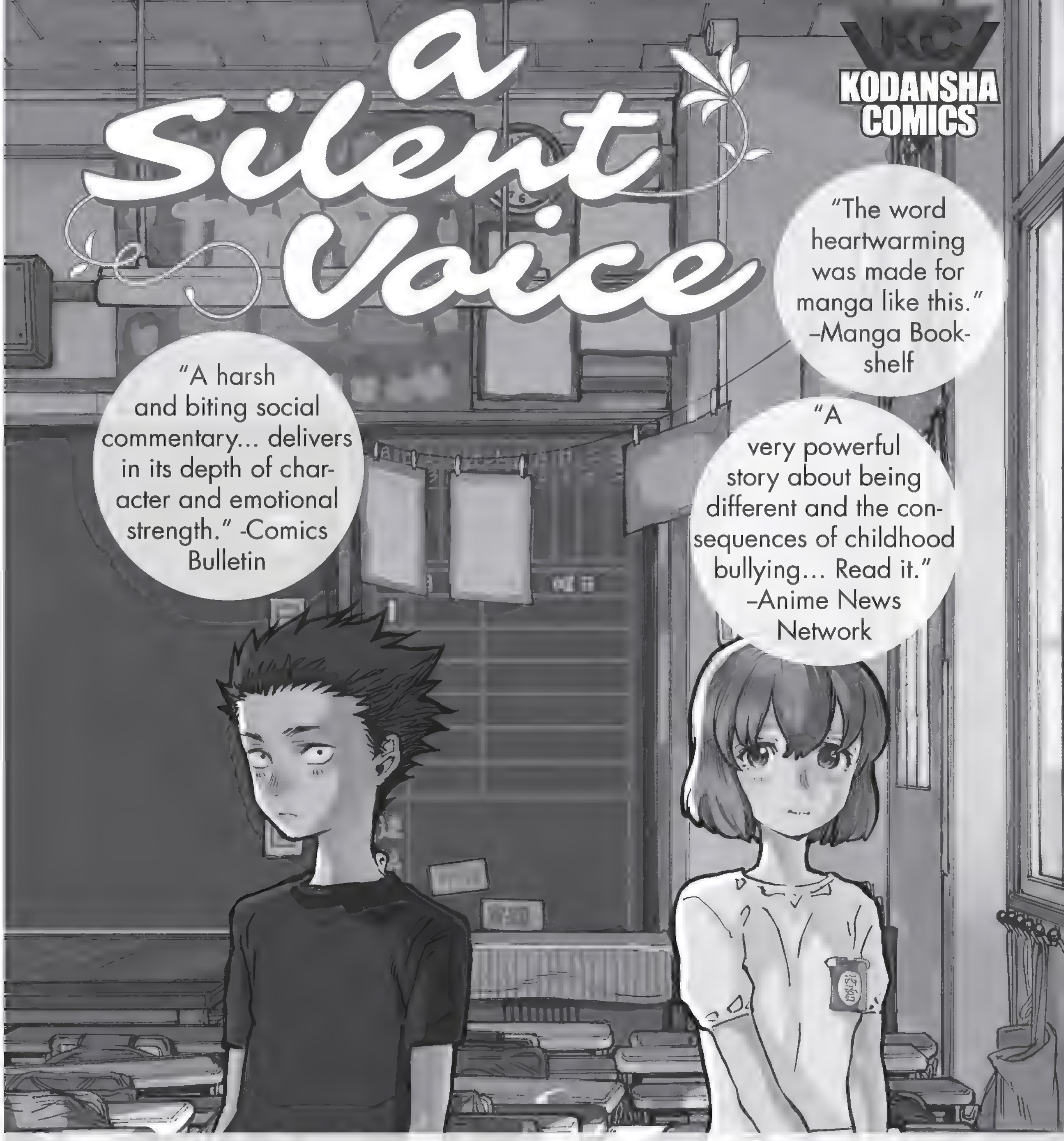
The Japanese word "*senpai*" roughly translates to "upperclassman" or "senior." While it is used by students to refer to their older peers, it is not necessarily an academic term, and can be used to refer to anyone in a given situation who's more experienced than the speaker but not necessarily in a position of authority over them, as opposed to a teacher or a boss, who would not be considered a *senpai*. It often connotes respect and admiration.


EOSINOPHIL
LET'S MAKE A BODY STRONG AGAINST STRESS
TUNK

A Body Strong Against Stress

Page 50

This is a parody of popular municipal slogans—e.g. "A Town Strong Against Crime" for Yokohama City. The slogans usually seeks to promote a set of policies or infrastructure designed to combat a specific problem.


a Silent Voice
KODANSHA COMICS
"The word heartwarming was made for manga like this." –Manga Bookshelf
"A harsh and biting social commentary... delivers in its depth of character and emotional strength." -Comics Bulletin
"A very powerful story about being different and the consequences of childhood bullying… Read it." –Anime News Network

Shoya is a bully. When Shoko, a girl who can't hear, enters his elementary school class, she becomes their favorite target, and Shoya and his friends goad each other into devising new tortures for her. But the children's cruelty goes too far. Shoko is forced to leave the school, and Shoya ends up shouldering all the blame. Six years later, the two meet again. Can Shoya make up for his past mistakes, or is it too late?

Available now in print and digitally!

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KC
KODANSHA COMICS
Yamada-kun AND THE Seven Witches
SWAPPED WITH A KISS?!

"A very funny manga with a lot of heart and character."
—Adventures in Poor Taste

Class troublemaker Ryu Yamada is already having a bad day when he stumbles down a staircase along with star student Urara Shiraishi. When he wakes up, he realizes they have switched bodies—and that Ryu has the power to trade places with anyone just by kissing them! Ryu and Urara take full advantage of the situation to improve their lives, but with such an oddly amazing power, just how long will they be able to keep their secret under wraps?

Available now in print and digitally!

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DON'T MISS THE MOST ACCLAIMED ACTION MANGA OF 2013!

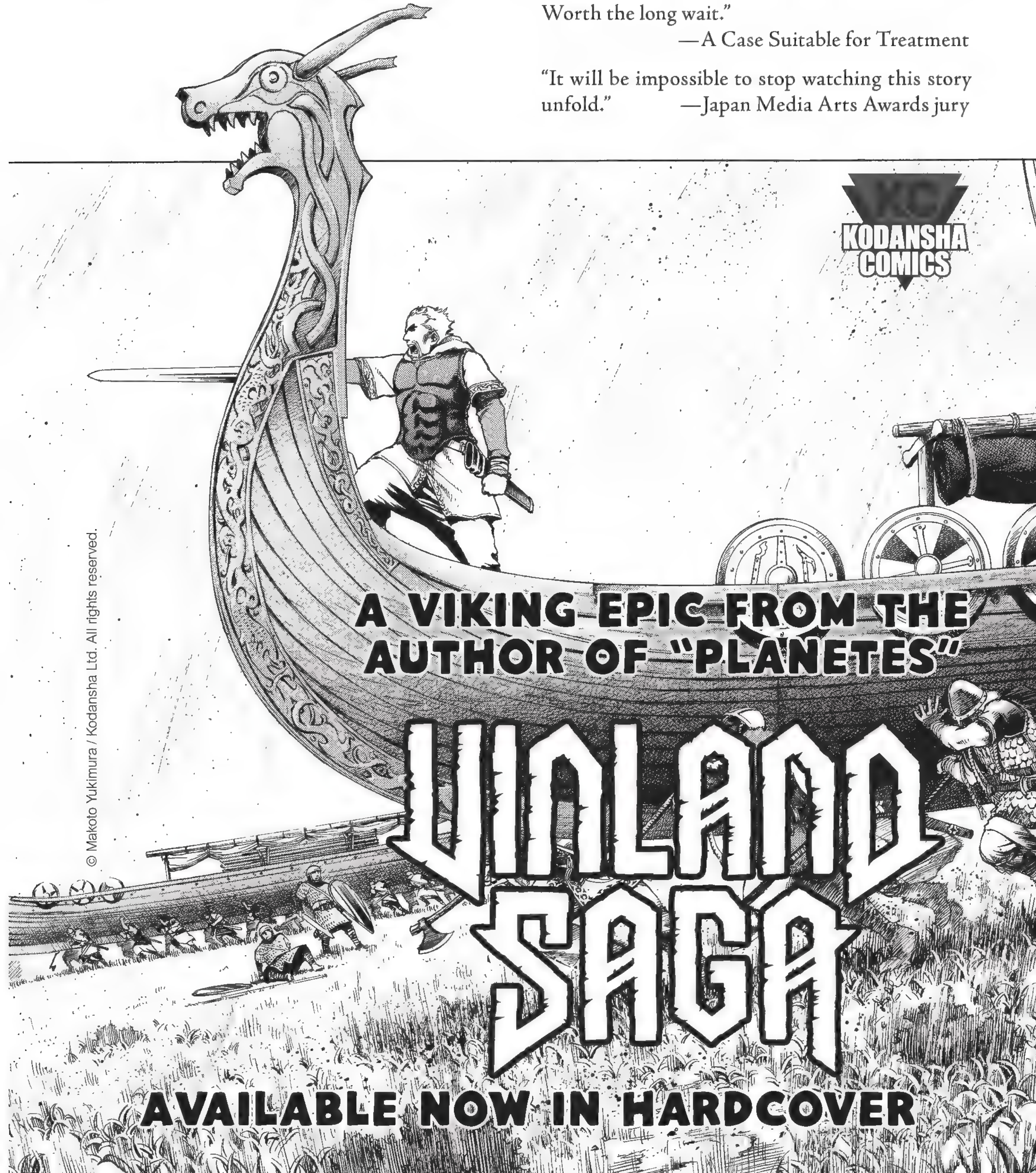
"Gripping doesn't begin to describe Vinland Saga. 5 stars."
—ICv2

"Deeply engrossing... If you have any interest at all in Vikings, the Medieval period, or pirates, this is not a series you want to miss."
—Anime News Network

"The art is gorgeous, a combination of beautiful cartooning and realistic backgrounds. Yukimura is also a master of pacing, both in frenetic battle scenes and charged emotional moments."
—Faith Erin Hicks, *Friends With Boys*

"For those who love Berserk, you'll love this too... Worth the long wait."
—A Case Suitable for Treatment

"It will be impossible to stop watching this story unfold."
—Japan Media Arts Awards jury


KC
KODANSHA COMICS
A VIKING EPIC FROM THE AUTHOR OF "PLANETES"
VINLAND SAGA
AVAILABLE NOW IN HARDCOVER

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SHERLOCK BONES
KC
KODANSHA COMICS

DEDUCTIVE DOG DETECTIVE

When Takeru adopts a new pet, he's in for a surprise—the dog is none other than the reincarnation of Sherlock Holmes. With no one else able to communicate with Holmes, Takeru is roped into becoming Sherdog's assistant, John Watson. Using his sleuthing skills, Holmes uncovers clues to solve the trickiest crimes. 🐾

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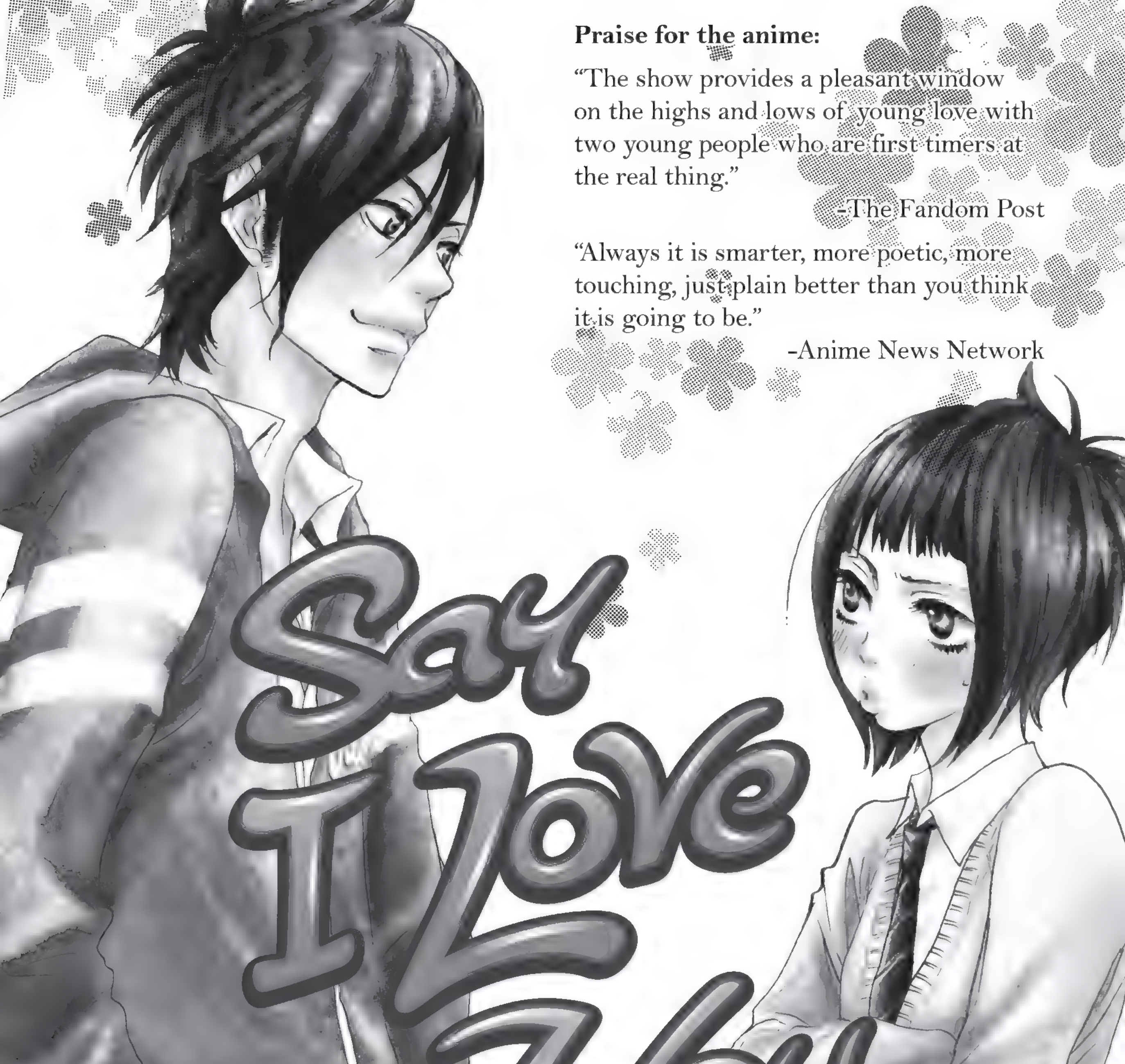

Praise for the anime:

"The show provides a pleasant window on the highs and lows of young love with two young people who are first timers at the real thing."

-The Fandom Post

"Always it is smarter, more poetic, more touching, just plain better than you think it is going to be."

-Anime News Network

Mei Tachibana has no friends — and says she doesn't need them!

But everything changes when she accidentally roundhouse kicks the most popular boy in school! However, Yamato Kurosawa isn't angry in the slightest — in fact, he thinks his ordinary life could use an unusual girl like Mei. But winning Mei's trust will be a tough task. How long will she refuse to say, "I love you"?

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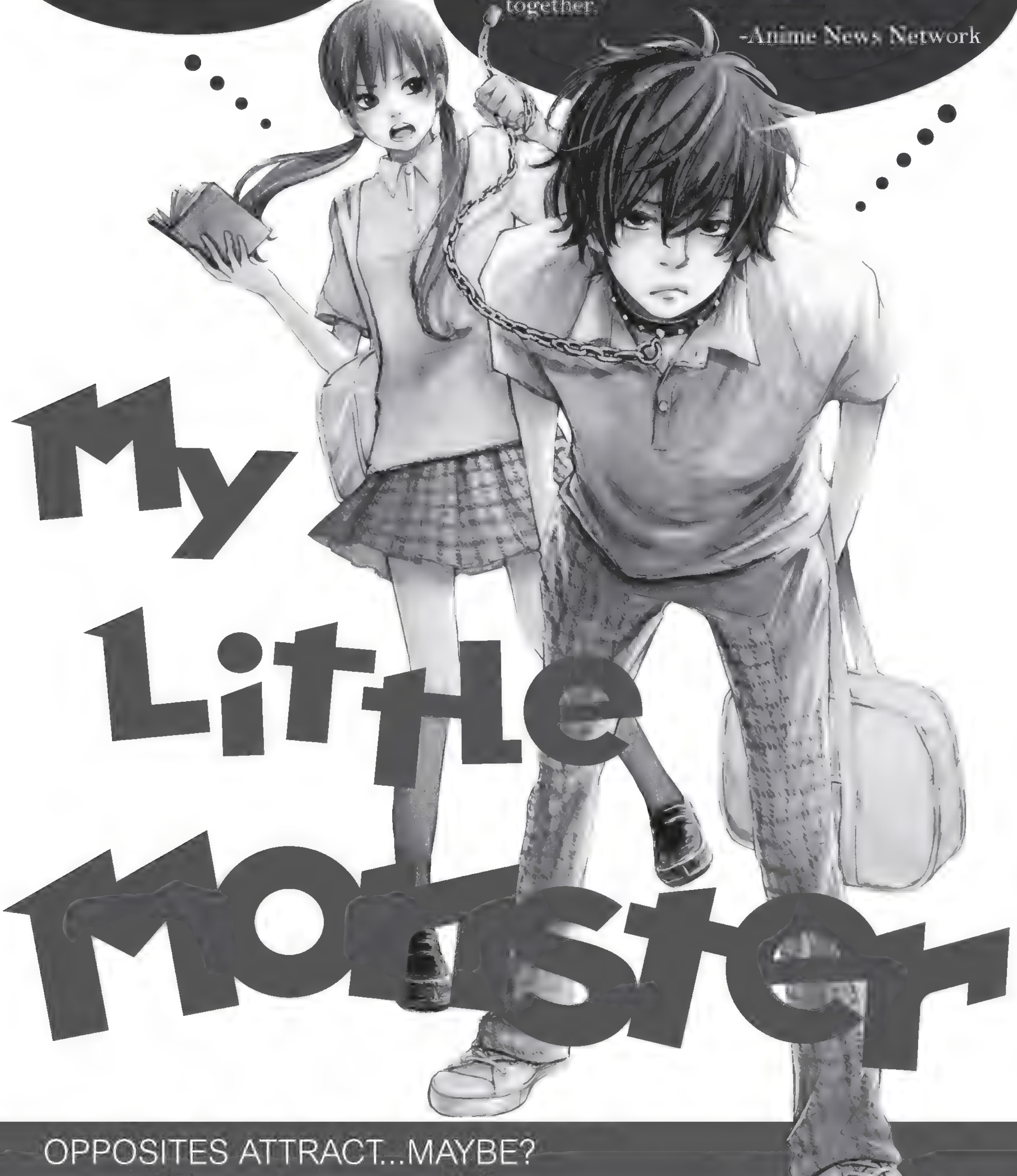
PRAISE FOR THE ANIME!

"This series never fails to put a smile on my face."
-Dramatic Reviews

"A very funny look at what happens when two strange and strangely well-suited people try to navigate the thorny path to true love together."
-Anime News Network



OPPOSITES ATTRACT...MAYBE?

Haru Yoshida is feared as an unstable and violent "monster." Mizutani Shizuku is a grade-obsessed student with no friends. Fate brings these two together to form the most unlikely pair. Haru firmly believes he's in love with Mizutani and she firmly believes he's insane.

KC KODANSHA COMICS

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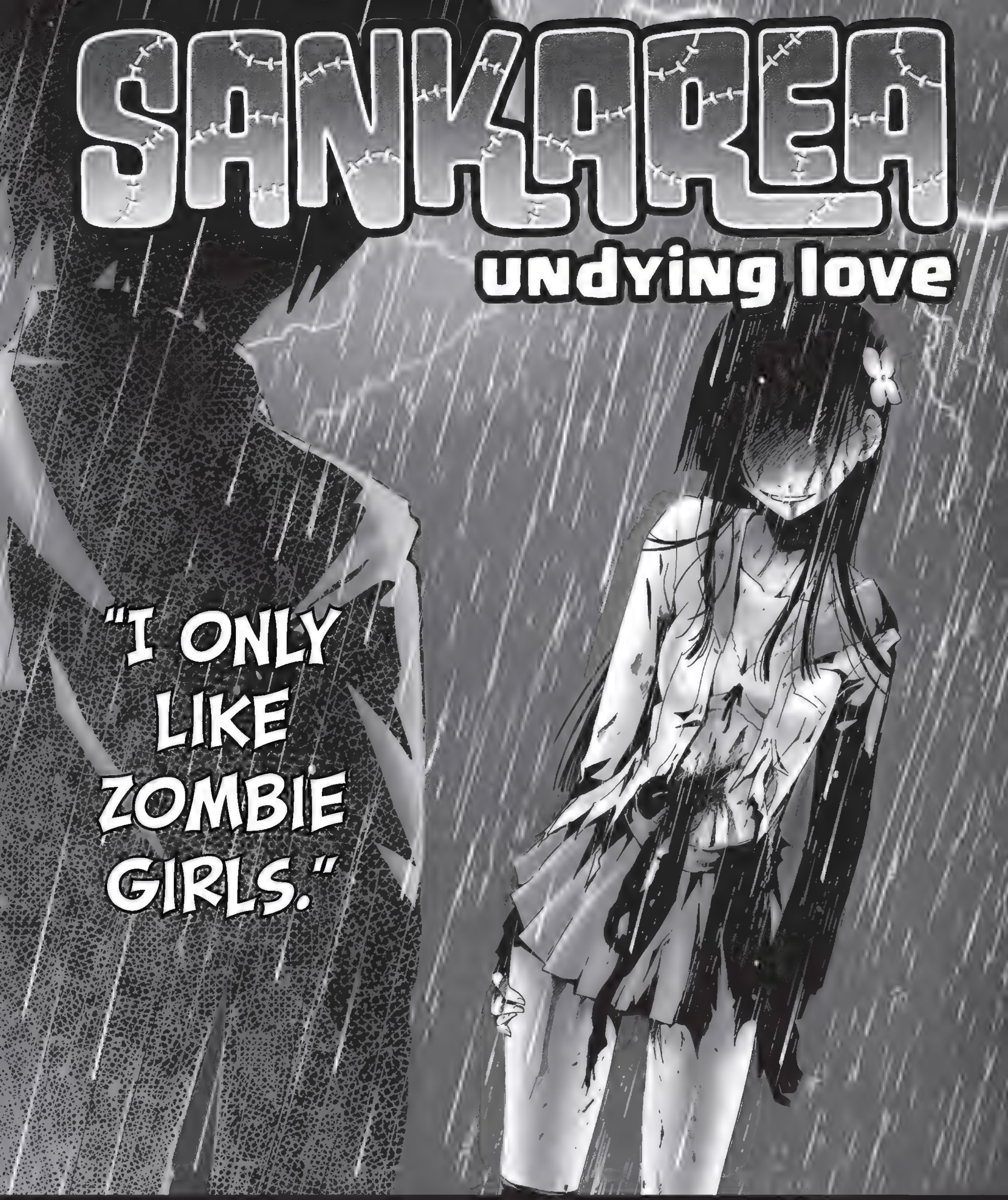
SANKAREA
undying love
"I ONLY LIKE ZOMBIE GIRLS."

Chihiro has an unusual connection to zombie movies. He doesn't feel bad for the survivors – he wants to comfort the undead girls they slaughter! When his pet passes away, he brews a resurrection potion. He's discovered by local heiress Sanka Rea, and she serves as his first test subject!

KC
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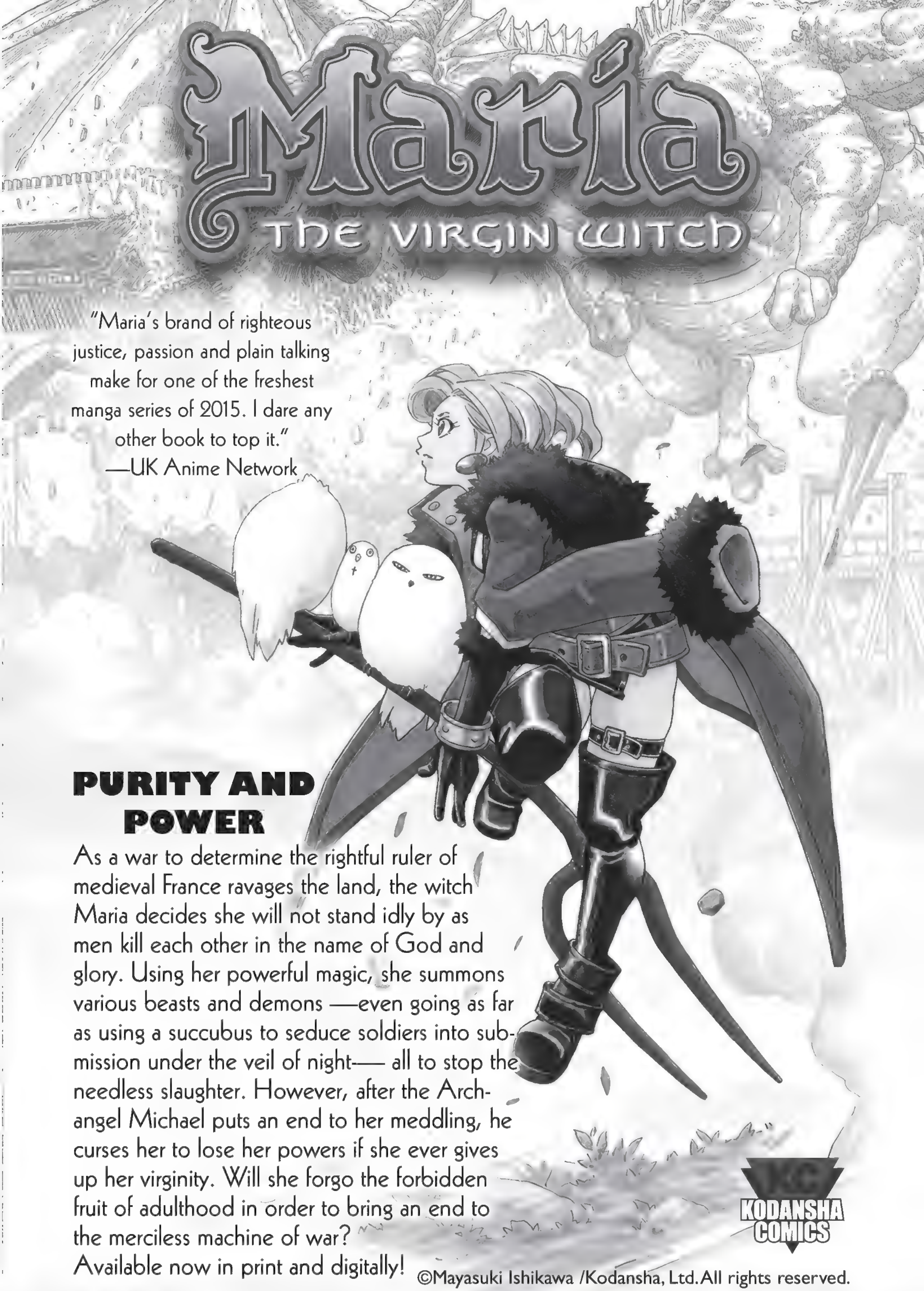

Maria
THE VIRGIN WITCH

"Maria's brand of righteous justice, passion and plain talking make for one of the freshest manga series of 2015. I dare any other book to top it."
—UK Anime Network

PURITY AND POWER

As a war to determine the rightful ruler of medieval France ravages the land, the witch Maria decides she will not stand idly by as men kill each other in the name of God and glory. Using her powerful magic, she summons various beasts and demons —even going as far as using a succubus to seduce soldiers into submission under the veil of night— all to stop the needless slaughter. However, after the Archangel Michael puts an end to her meddling, he curses her to lose her powers if she ever gives up her virginity. Will she forgo the forbidden fruit of adulthood in order to bring an end to the merciless machine of war?
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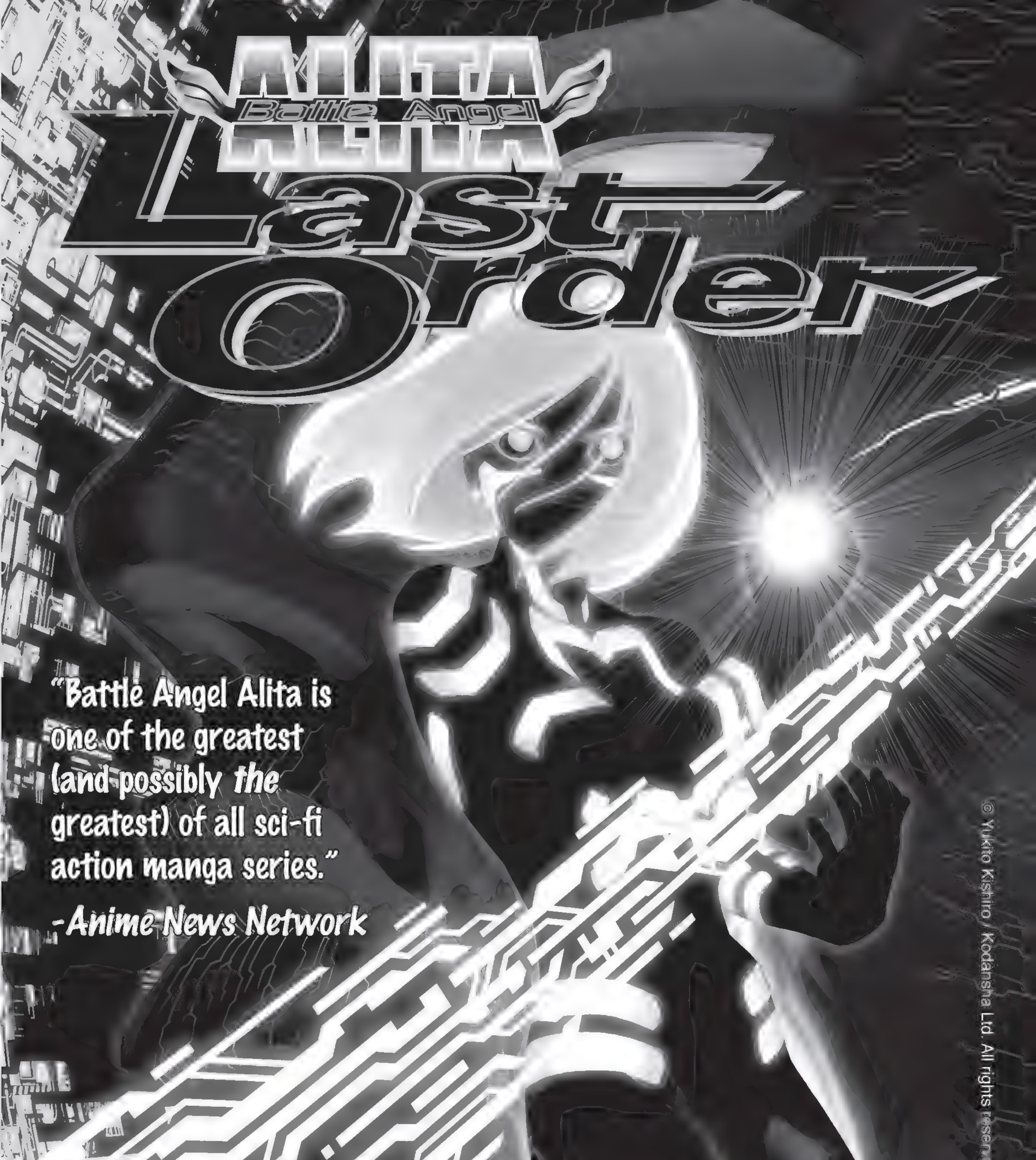
ALITA
Battle Angel
ALITA
Last Order
"Battle Angel Alita is one of the greatest (and possibly *the* greatest) of all sci-fi action manga series."
-Anime News Network

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The Cyberpunk Legend is Back!

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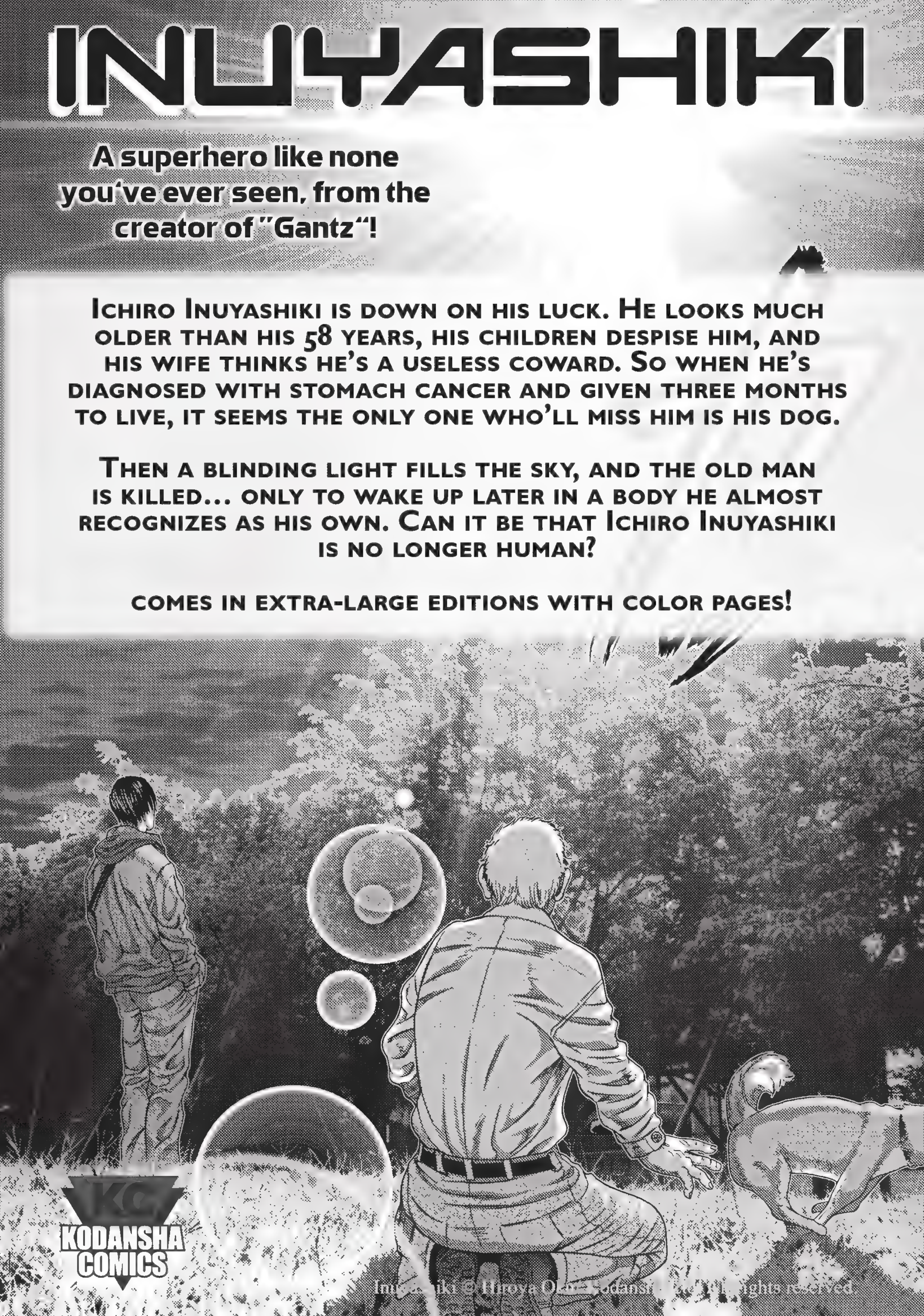

INUYASHIKI

A superhero like none
you've ever seen, from the
creator of "Gantz"!

Ichiro Inuyashiki is down on his luck. He looks much older than his 58 years, his children despise him, and his wife thinks he's a useless coward. So when he's diagnosed with stomach cancer and given three months to live, it seems the only one who'll miss him is his dog.

Then a blinding light fills the sky, and the old man is killed... only to wake up later in a body he almost recognizes as his own. Can it be that Ichiro Inuyashiki is no longer human?

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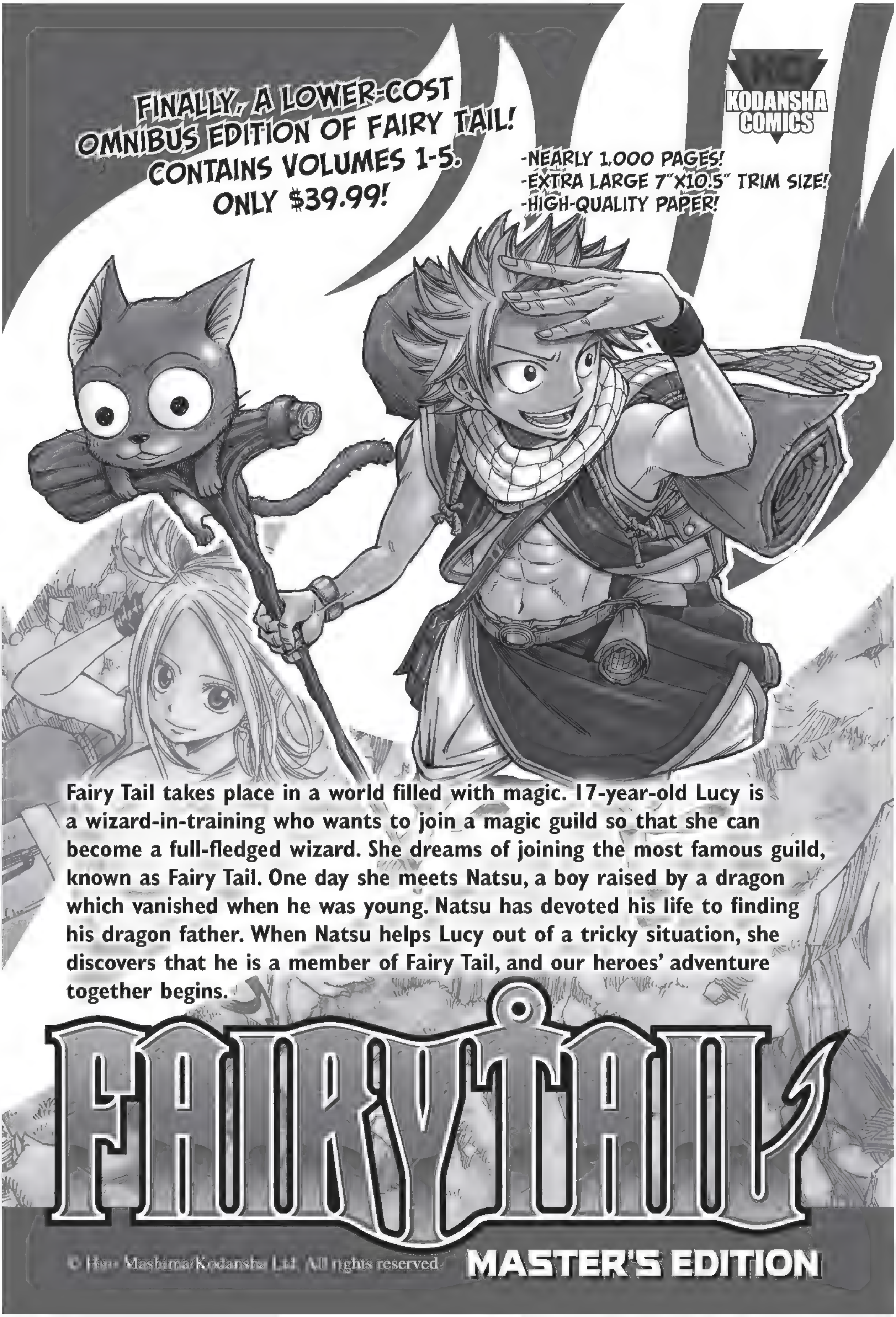

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FAIRY TAIL
MASTER'S EDITION

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DEVIL SURVIVOR
デビルサバイバー

AFTER DEMONS BREAK THROUGH INTO THE HUMAN WORLD, TOKYO MUST BE QUARANTINED. WITHOUT POWER AND STUCK IN A SUPERNATURAL WARZONE, 17-YEAR-OLD KAZUYA HAS ONLY ONE HOPE: HE MUST USE THE *"COMP,"* A DEVICE CREATED BY HIS COUSIN NAOYA CAPABLE OF SUMMONING AND SUBDUING DEMONS, TO DEFEAT THE INVADERS AND TAKE BACK THE CITY.

BASED ON THE POPULAR VIDEO GAME FRANCHISE BY *ATLUS!*

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BLUE MISTRAL

Wendy's Very Own Fairy Tail!

The new adventures of everyone's favorite Sky Dragon Slayer, Wendy Marvell, and her faithful friend Carla!

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THE HEROIC LEGEND OF ARSLAN

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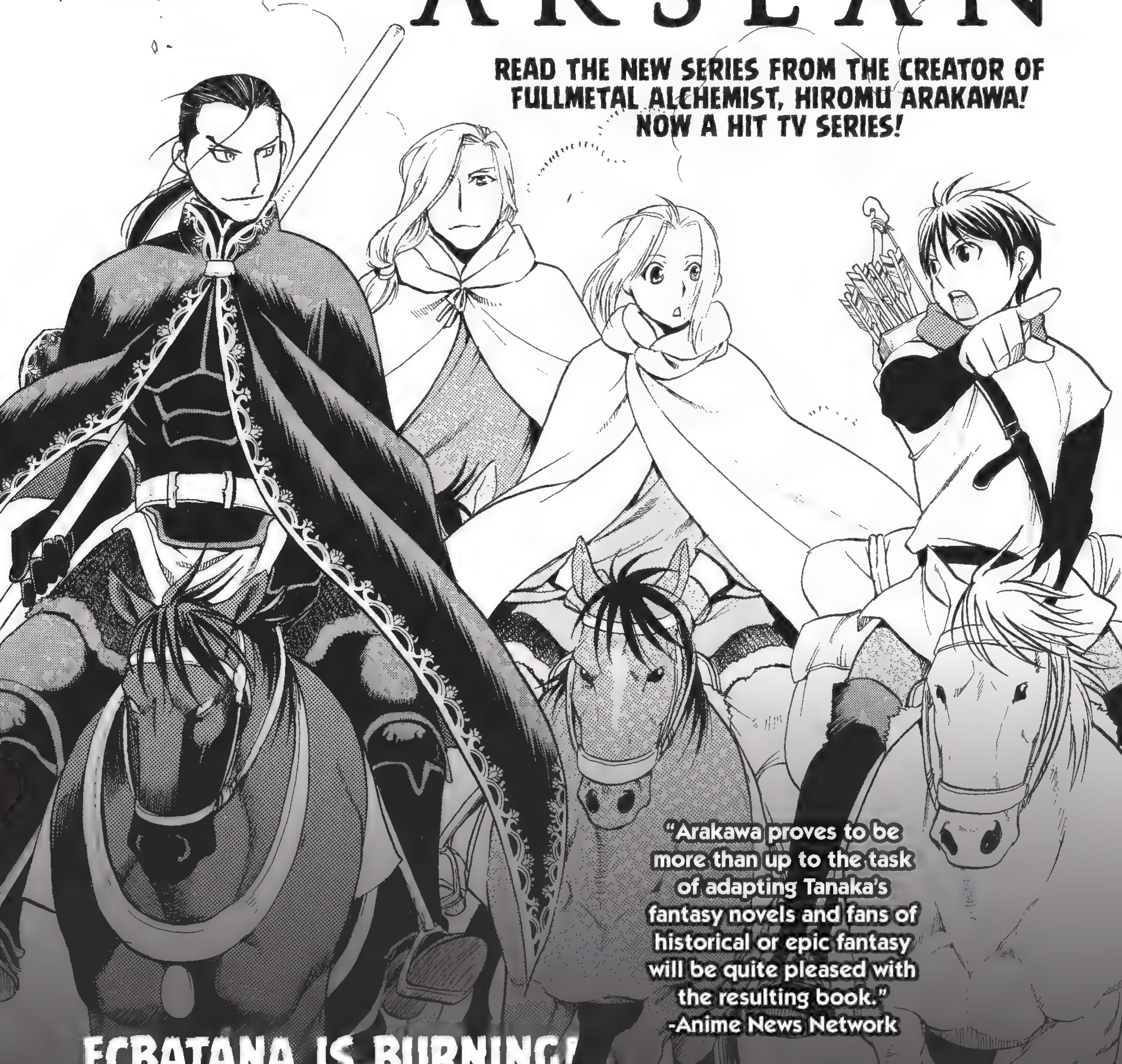

> "Arakawa proves to be more than up to the task of adapting Tanaka's fantasy novels and fans of historical or epic fantasy will be quite pleased with the resulting book."
> -Anime News Network

ECBATANA IS BURNING!

Arslan is the young and curious prince of Pars who, despite his best efforts doesn't seem to have what it takes to be a proper king like his father. At the age of 14, Arslan goes to his first battle and loses everything as the blood-soaked mist of war gives way to scorching flames, bringing him to face the demise of his once glorious kingdom. However, it is Arslan's destiny to be a ruler, and despite the trials that face him, he must now embark on a journey to reclaim his fallen kingdom.

Available now in print and digitally!

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Cells at Work! 1

KODANSHA COMICS Digital Edition

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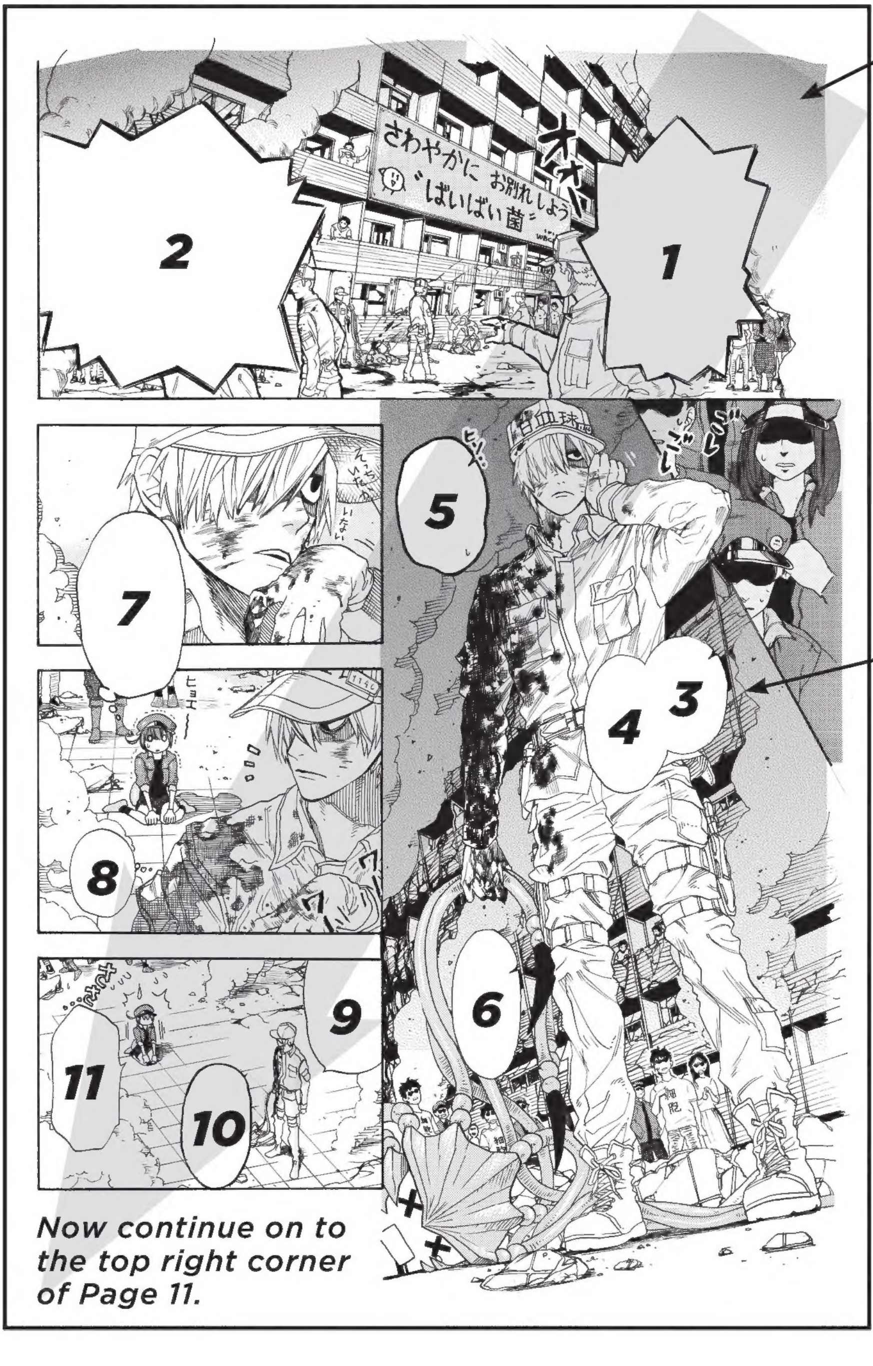
HOW TO READ MANGA

Japanese is written right to left and top to bottom. This means that for a reader accustomed to Western languages, Japanese books read “backwards.” Since most manga published in English now keeps the Japanese page order, it can take a little getting used to—but once you learn how, it’s a snap. Here’s a handy guide!

Here you can see pages 10-11 from this book. The speech balloons have been numbered in the order you should read them in.

Page 10*—read this one first!*

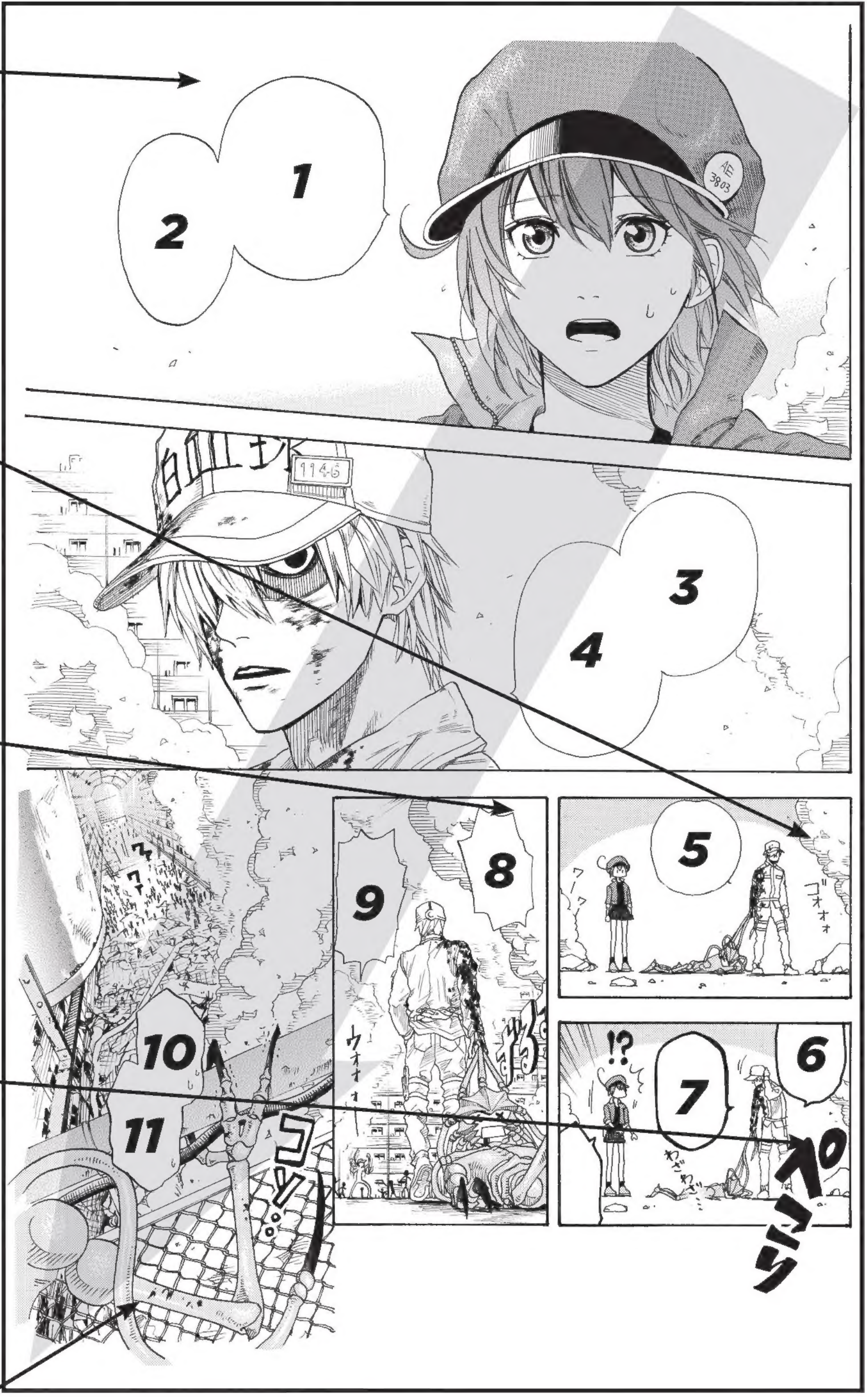


Start here, at the top right corner of the right hand page.

Read right to left, then top to bottom. In this panel, the leftmost speech balloon comes before the one in the top left corner.

Now continue on to the top right corner of Page 11.

Page 11



On this page, the top two panels are read first.

This panel is the top right-most after the first two, so it's next.

If you go to this panel next, you would have to move backwards (right) to read balloons 6 and 7.

Instead, after reading balloon 5, you move down to 6 and 7, then left...

...and then you arrive at the end of the page!

After a few pages, you'll be reading manga like a pro—*Japanese-style!*

止まれ

(That means **STOP**)

You’re about to read a *manga*—a Japanese comic—presented in its original page order, which means you start at the other end of the book. If you need a quick guide on how to read manga the way it was meant to be read, flip to the next page—otherwise, turn the book over and enjoy!